L ANTARCTIC

AUSTRALASIAN ANTARCTIC EXPEDITION

1911 - 1914.

UNDER THE LEADERSHIP OF SIR DOUGLAS MAWSON, D.Sc., B.E.

SCIENTIFIC REPORTS.

SERIES C.--ZOOLOGY AND BOTANY.

VOL. IV. PART 1.

MOLLUSCA

BY

C. HEDLEY, F.L.S.,

AUSTRALIAN MUSEUM, SYDNEY.

WITH NINE PLATES AND THREE FIGURES IN THE TEXT.

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Introduction.—Progress of Antarctic Conchology.—Environment of Antarctic marine fauna.—Areas examined.—Local conditions at Commonwealth Bay.—Distribution by stations.—Enumeration of species collected at various Antarctic stations and at the Auckland Islands.—Macquarie Island: previous zoological examination; amelioration of climate effected by the Notonectian current; list of molluscan fauna; comparison with other subantarctic islands; beach ecology.—Account of collection in systematic order.

MOLLUSCA.

(*Exclusive of Cephalopoda.*)

By Charles Hedley.

(Plates I.-IX.)

Our knowledge of the south polar Mollusca has been considerably enlarged during the past 20 years by the work of various Antarctic Expeditions. These gains are represented by a sketch of the literature compiled by Messrs. Melvill and Standen,* and by catalogues arranged by Drs. H. Strebel,† P. Dautzenberg, H. Fischer,‡ and J. Thiele.§

Though few observations have been made, it is apparent that Antarctic waters differ from those of temperate seas by greater uniformity in vertical section. Penetration of light in these high latitudes must be brief owing both to the angle of incidence from a low sun and to the dense screen of a richer plankton. Where the temperature of the surface scarcely rises above freezing, the whole column of several hundred fathoms from the waves to the ground can hardly vary a degree.

Consequently, barriers that elsewhere confine the sublittoral fauna do not exist here ; and such fauna, except for absence of algæ, can range from beach to abyss through an almost identical environment.

Probably change from stones to ooze is the chief factor to affect distribution, and much of the deep area usually spread with ooze must be paved with moraine matter spilt from capsized icebergs.

The intense cold maintains a similar climate throughout the whole Antarctic periphery, while vigorous westerly winds establish rapid communications of drifting spores and larvæ between one district and those that lie to leeward. Monotony of environment thus tends to produce a uniform fauna and flora. A striking circumpolar distribution is shown by the largest and most conspicuous shells such as *Neobuccinum eatoni*, *Chlamys colbecki*, and *Laternula elliptica*. As the less conspicuous species are examined they will agree with the more prominent forms.

* Melvill and Standen.—Scientific results of the Scotia Expedition, v., 1907, pp. 124-127 and vi., 1912, pp. 138-140.

† Strebel.—Schwed. Südpol. Exped. vi., 1908, pp. 86-93.

‡ Dautzenberg and Fischer.—Result Camp. Scient. Monaco, xxxvii., 1912, pp. 10-15.

§ Thiele.—Deutsch. Südpol. Exped. xiii., 1912, pp. 257-270.

Dr. G. Pfeffer considered that circumpolarity in the marine fauna is more developed in the Arctic than in Antarctic regions (Ann. Mag. Nat. Hist., April, 1901, p. 302). Available information seems to me yet insufficient for this comparison.

At the eastern corner of the Australian Quadrant; Cape Adare and McMurdo Sound have been searched in succession by the expeditions that sailed in the "Southern Cross," "Discovery," "Nimrod," and the "Terra Nova." While at the western extremity of this quadrant the zoologists of the "Gauss" obtained a collection larger than those of all the eastern parties combined. Between these points, for an extent of more than 2,000 miles, nothing was known of the fauna, so that a collection from an intermediate position in Adelie Land was particularly desirable. Such a position was found in Commonwealth Bay, the main base of the Australasian Antarctic Expedition, which was examined as fully as the severe weather conditions allowed. In several features this station differed from that of McMurdo Sound. In the first place the latitude is 10° lower, and the climate presumably is correspondingly milder. Accordingly a sublittoral fauna and flora appear to rise nearer to the surface here than has been noted from any other part of Antarctica.

Usually the Antarctic ice-foot not only ploughs out all intertidal or beach life, but represses existence for a depth of several fathoms. Murray* has described how he found the ground barren down to the lowest level reached by floating ice-keels, and how, beyond 25 fathoms off Cape Royds, he found organisms not only existing, but luxuriating, in dense and continuous masses.

Unusual meteorological conditions prevail in Commonwealth Bay, the ice being generally blown out to sea as it forms, so that it rarely fringes the shore. From the surface, as far as the eye can reach down, is seen a jungle of giant algæ, among the roots and fronds of which numerous animals of all classes find shelter. The fronds of the seaweed sometimes become encased in ice, which, accumulating in large masses, lifts the weed from the ground. "A branching stem found floating in the harbour measured 18ft. in length."† On December 18th, 1913, the Mackellar Islets in Commonwealth Bay were found to be "kelp-fringed,"‡ but it is not known whether the kelp was perennial or a summer crop. The luxuriance of the kelp in February, 1912, interfered with the working of the fish trap.

Touching the Marine Biology of Commonwealth Bay, Sir D. Mawson continues (p. 165), "Hunter, with the small hand-dredge, brought up abundant samples of life from depths ranging to 50 fathoms. In water shallower than 10 fathoms the variety of specimens was not great, including seaweeds up to 18ft. or more in length, a couple of forms of star-fish, various small mollusca, two or three varieties of fish, several sea-spiders, hydroids. and lace corals, and, in greater profusion, worms and small crustaceans. In deeper waters the life became much richer, so that examples of almost every known class of marine animals were represented. Early in June the sea bottom, in depths less than 10 fathoms, had become so coated with ice that dredging in shallow water was suspended. Floating, or swimming freely, were examples of pteropods, worms,

* Murray.—Brit. Antarct. Exped. Zool. ii., 1911, p. 1. † Mawson.—"The Home of the Blizzard," ii., 1915, p. 132.
‡ Mawson.—"The Home of the Blizzard," ii., 1915, p. 258.

crustaceans, ostracods, and jelly-fish. These were easily taken in the hand-net. In these regions, where ice and water are intermingled, the temperature of the water varies very slightly in summer and winter, remaining approximately at freezing point. In summer the tendency to heating is neutralised by a solution of some of the ice, and in winter the cold is absorbed in the production of a surface layer of ice. This constancy of the sea's temperature is favorable to organic life."

This description suggests that marine organisms in the sheltered parts of Commonwealth Bay may, perhaps, endure alternations of freezing and thawing. This is an interesting question of marine bionomics which may engage the attention of future Antarctic investigators.

From this station we are fortunate in having a descending series of substations at different depths.

Station I.

Commonwealth Bay, Adelie Land.

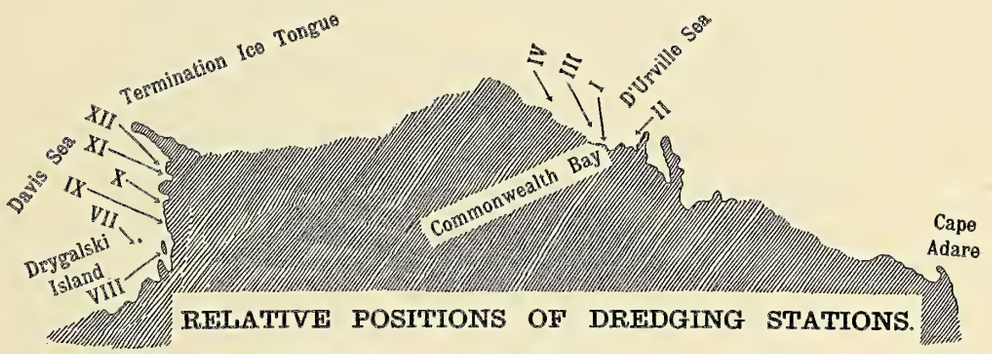

Fig. 1.

Dr. Maclean collected in 1913, from the surface of the Boat Harbour, two living Pteropods—

Clione antarctica Smith.
Cliodita caducens Quoy and Gaimard.

and in 3 fathoms in the Boat Harbour he took—

Philobrya wandelensis Lamy.
Philippiella bagei Hedley.
Submargarita crebrilirulata Smith.
Lævilitorina antarctica Smith.

From 15-20 fathoms, on a floor of rock and brown algæ, Mr. Hunter found (January 20th, 1913)—

Margarella refulgens Smith.
Submargarita crebrilirulata Smith.
Neobuccinum eatoni Smith.
Trophon longstaffi Smith.

A successful series was made on the 3rd and 4th of September, 1912 (pp. 199-200), through holes in the sea-ice, about half a mile from shore. The narrative mentions 50 fathoms, but the mollusca are labelled from 25 fathoms. They are—

Lissarca notorcadensis Melv. & Stand.
Philobrya wandelensis Lamy.
Philippiella bagei Hedley.
Adacnarca nitens Pelseneer.
Chlamys colbecki Smith.
Lima ovalis Thiele.
Laternula elliptica King & Broderip.
Kellia nimrodiana Hedley.
Margarella refulgens Smith.
Submargarita crebrilirulata Smith.
Minolia dulcis Smith.
Lepeta coppingeri Smith.
Lævilittorina antarctica Smith.
Eatoniella kerguelenensis Smith.
Ovirissoa adarensis Smith.
Subonoba bickertoni Hedley.
Subonoba gelida Smith.
Subonoba glacialis Smith.
Subonoba ovata Thiele.
Cerithiopsilla antarctica Smith.
Melanella laseroni Hedley.
Friginatica grisea von Martens.
Marseniopsis mollis Smith.
Prosipho aurora Hedley.
Prosipho hunteri Hedley.
Prosipho madigani Hedley.
Prosipho mundus Smith var. *macleani* Hedley.
Neobuccinum eatoni Smith.
Trophon condensatus Hedley.
Trophon longstaffi Smith.
Toledonia major Hedley var. *elata* Hedley.
Doris nivalis Thiele.
Tritoniella sinuata Eliot.
Notæolidia depressa Eliot.

While the "Aurora" was anchored in Commonwealth Bay, Mr. Hunter worked a small hand-dredge from the ship, and on December 14th, 1913, secured from a rich bottom, with abundance of polyzoa, in a depth of 45-50 fathoms, the following mollusca:—

Philobrya wandelensis Lamy.
Philippiella bagei Hedley.
Adacnarca nitens Pelseneer.
Cyamium rotundatum Thiele.
Callochiton gaussi Thiele.
Margarella refulgens Smith.
Submargarita crebrilirulata Smith.
Lepeta coppingeri Smith.
Eatoniella kerguelenensis Smith.
Subonoba bickertoni Hedley.
Subonoba deserta Smith.
Subonoba gelida Smith.
Subonoba glacialis Smith.
Subonoba wilkesiana Hedley.
Eumeta strebeli Thiele.
Melanella exulata Smith.
Marseniopsis mollis Smith.
Prosipho hunteri Hedley.
Prosipho madigani Hedley.
Pareuthria innocens Smith.
Trophon longstaffi Smith.
Toledonia major Hedley var. *elata* Hedley.
Notœolidia depressa Eliot.

Under similar circumstances on December 21st, 1913, from 55-60 fathoms, he took—

Lissarca notorcadensis Melvill & Standen.
Philippiella bagei Hedley.
Adacnarca nitens Pelseneer.
Ptychocardia van hoffeni Thiele.
Kellia nimrodiana Hedley.
Margarella refulgens Smith.
Submargarita crebrilirulata Smith.
Minolia dulcis Smith.
Lepeta coppingeri Smith.
Marseniopsis mollis Smith.
Pareuthria innocens Smith.
Neobuccinum eatoni Smith.
Trophon longstaffi Smith.
Trophon shackletoni Hedley.
Toledonia major Hedley var. *elata* Hedley.
Doris nivalis Thiele.
Notœolidia depressa Eliot.

On December 22nd, 1913, the vessel took up a position about four miles from Cape Hunter (Vol. II., p. 260), South Lat. 66° 50′, East Long. 142° 6′, on the west side of Commonwealth Bay. Here, with the Agassiz trawl, " a haul was made in 250 fathoms, of ascidians, sponges, crinoids, holothurians, fish, and other forms of life in such quantity that Hunter and Hamilton were occupied in sorting the specimens until 5 o'clock next morning."

The surface temperature was — 1·85 C.; very little ooze came up, and the trawl appeared to have skimmed over a continuous sheet of organic life. Towards the end of the operation the depth increased, and the following mollusca were labelled as from 350-400 fathoms :—

Lissarca notorcadensis Melv. & Stand.
Adacnarca nitens Pelseneer.
Lima hodgsoni Smith.
Callochiton gaussi Thiele.
Margarella refulgens Smith.
Minolia dulcis Smith.
Melanella exulata Smith.
Trichoconcha mirabilis Smith.
Marseniopsis mollis Smith.
Prosipho spiralis Thiele.
Trophon longstaffi Smith.
Doris antarctica Hedley.
Tritoniella sinuata Eliot.

Station II.

Proceeding eastwards, the trawl was next put over on December 28th, close to the Mertz Glacier Tongue (p. 263), South Lat. 66° 55′, East Long. 145° 21′. " Beside rocks and mud there were abundant crinoids, holothurians, corals, crustaceans, and shells." The surface temperature was — 1·8 C. The mollusca are labelled from 288-300 fathoms from ooze bottom.

Poroleda longicaudata Thiele.
Malletia sabrina Hedley.
Silicula rouchi Lamy.
Limopsis grandis Smith.
Lissarca notorcadensis Melv. & Stand.
Philippiella orbiculata Hedley.
Adacnarca nitens Pelseneer.
Lima hodgsoni Smith.
Pholadomya antarctica Hedley.
Pholadomya mawsoni Hedley.
Pholadomya adelaidis Hedley.
Thracia meridonalis Smith.

Cuspidaria infelix Thiele.
Cuspidaria plicata Thiele.
Cyamium rotundatum Thiele.
Ptychocardia rudis Hedley.
Pseudokellya stillwelli Hedley.
Minolia thielei Hedley.
Trichotropis antarctica Thiele.
Pellilitorina rossiana Smith.
Marseniopsis mollis Smith.
Harpovoluta vanhoffeni Thiele.
Oenopota davisi Hedley.
Pontiothauma ergata Hedley.
Probuccinum costatum Thiele.
Neobuccinum eatoni Smith.
Trophon coulmanensis Smith.
Trophon longstaffi Smith.
Neactæonina fragilis Thiele.
Newnesia antarctica Smith.
Toledonia globosa Hedley.
Toledonia major var. *elata* Hedley.
Notæolidia depressa Eliot.
Spiral of *Gasteropod* eggs.
Dentalium majorinum Mabille & Rochbrune.

Station III.

Steering west, the "Aurora" now recrossed Commonwealth Bay, and on the last day of 1913 shot the trawl in South Lat. 66° 32′, East Long. 141° 39′. The surface temperature was —1·62 C., depth 157 fathoms, and bottom ooze. Mollusca were represented by the following:—

Lissarca notorcadensis Melvill & Standen.
Adacnarca nitens Pelseneer.
Lima hodgsoni Smith.
Notochiton mirandus Thiele.
Callochiton gaussi Thiele.
Minolia dulcis Smith.
Trichochoncha mirabilis Smith.
Marginella hyalina Thiele.
Admete delicatula Smith.
Probuccinum tenuistriatum Hedley.

From the D'Urville Sea, between the meridians of 140 and 146, on the coast of Adelie Land, whence no mollusca were previously known, this expedition thus obtained 77 species of *Gasteropoda*, *Pelecypoda*, and *Scaphopoda*, of which 23 are new. The

four expeditions that have collected off the coast of South Victoria Land, in the Ross Sea, between the meridians of 163 and 173, have altogether reported 97 members of these groups of mollusca. From the Davis Sea the "Gauss" Expedition reported 122 species, to which the present inquiry added 12. A difference in collecting, rather than a difference in the fauna, is represented by these figures.

Station IV.

Approaching the coast of Wilkes Land on January 2nd, 1914, the trawl was lowered in South Lat. 65° 48′, East Long. 137° 32′, in 230 fathoms, bottom ooze; surface temperature —1·4° C.

The narrative refers to this (Vol. II., p. 266) as unsuccessful. The only mollusca obtained were—

Chlamys colbecki Smith.
Harpovoluta vanhoffeni Thiele.
Dentalium majorinum Mabille & Rochebrune.

Stations V. & VI.

Supplied no mollusca.

Station VII.

The "Aurora" then entered the Davis Sea, and the remainder of the stations were pivoted round the winter station of the "Gauss."

The extensive dredgings carried out here by von Drygalski anticipated a number of the species taken by Sir Douglas Mawson's party.

On January 21st, 1914, off Drygalski Island, in South Lat. 65° 42′, East Long. 92° 10′, "the dredge was lowered in 60 fathoms, and a rich assortment of life was captured" (Vol. II., p. 270). On the ground were red algæ and small rocks. The mollusca consisted of—

Trichoconcha mirabilis Smith.
Marseniopsis mollis Smith.
Trophon shackletoni Hedley.

Station VIII.

Steering towards the winter quarters of the Western Base, a position was reached in South Lat. 66° 8′, East Long. 94° 17′, where a small dredge of the Ball type was lowered in 120 fathoms on January 27th, 1914. There were small granite rocks, but no ooze, in the net, and life generally was abundant.

Philippiella orbiculata Hedley.
Adacnarca nitens Pelseneer.
Lima hodgsoni Smith.
Thracia meridionalis Smith.

Venericardia astartoides von Martens.
Pseudokellya stillwelli Hedley.
Callochiton gaussi Thiele.
Margarella refulgens Smith.
Marseniopsis mollis Smith.
Probuccinum costatum Thiele.
Doris nivalis Thiele.
Buthydoris hodgsoni Eliot.
Aegires albus Thiele.

Station IX.

Cruising along the great Shackleton Ice-shelf, a stop was made on January 28th, at South Lat. 65° 20′, East Long. 95° 27′, and the trawl was lowered in 240 fathoms, ooze bottom, temperature 1·38 C.

Poroleda longicaudata Thiele.
Chlamys colbecki Smith.
Pholadomya mawsoni Hedley.
Pholadomya adelaidis Hedley.
Cyamium rotundatum Thiele.
Submargarita smithiana Hedley.
Lepeta depressa Hedley.
Trochaclis antarctica Thiele.
Friginatica grisea von Martens.
Harpovoluta vanhoffeni Thiele.
Pontiothauma ergata Hedley.
Neobuccinum eatoni Smith.
Dentalium majorinum Mabille & Rochebrune.

Station X.

The journey along the ice-shelf was continued, and on the following day, in South Lat. 65° 6′, East Long. 96° 13′, the trawl was again lowered in 325 fathoms; the temperature was — 1·65 C., and the bottom ooze.

Poroleda longicaudata Thiele.
Malletia sabrina Hedley.
Adacnarca nitens Pelseneer.
Chlamys colbecki Smith.
Axinopsis debilis Thiele.
Thracia meridionalis Smith.
Callochiton gaussi Thiele.
Stilifer polaris Hedley.
Bathydoris hodgsoni Eliot.
Dentalium majorinum Mabille & Rochebrune.

Station XI.

Still further along the Shackleton Ice-shelf a haul was made on January 31st, 1914, in South Lat. 64° 44′, East Long. 97° 28′, in 358 fathoms on a bottom of ooze.

Malletia sabrina Hedley.
Chlamys colbecki Smith.
Lima closei Hedley.
Axinopsis debilis Thiele.
Marseniopsis mollis Smith.
Neobuccinum eatoni Smith.
Dentalium majorinum Mabille & Rochebrune.

Station XII.

Here the campaign was concluded. Before reaching the Termination Ice Tongue the trawl was sent over for the last time in South Lat. 64° 32′, East Long. 97° 20′, in 110 fathoms on January 31st, 1914.

" Half a ton of life," writes the chronicler (Vol. II., p. 275), " emptied on the deck gave the biologists occupation for several days."

Leda oblonga Pelseneer.
Limopsis grandis Smith.
Lissarca notorcadensis Melvill & Standen.
Adacnarca nitens Pelseneer.
Chlamys colbecki Smith.
Lima hodgsoni Smith.
Venericardia astartoides von Martens.
Notochiton mirandus Thiele.
Lamellariopsis aurora Hedley.
Harpovoluta vanhoffeni Thiele.
Probuccinum costatum Thiele.
Newnesia antarctica Smith.
Doris nivalis Thiele.
Notæolidia depressa Eliot.
Dentalium majorinum Mabille & Rochebrune.

Though the " Aurora " called at the Auckland Islands, no serious attempt was made to collect mollusca there. Perhaps it was thought that this archipelago had already been sufficiently investigated by a special expedition to the Subantarctic Islands of New Zealand, which had reported on it.

A haul of the dredge in one fathom, Carnley Harbour, taken June 28th, 1912, by Mr. E. R. Waite yielded—

Thoristella aucklandica Smith.
Photinula capillacea Phil. var. *minor* Smith.
Lissarca aucklandica Smith.
Leptomya perconfusa Iredale.

The Subantarctic Islands differ in their marine fauna from Antarctica almost as much as they do from such temperate zones as those of New Zealand or Tasmania. That Macquarie Island should have almost the warmest climate of its latitude is apparently effected by an extension of the Notonectian current* already reported by Du Petit-Thouars as far south as 45° 16′.

Macquarie Island, the most southern land on which vegetation flourishes, was for the conchologist undiscovered territory when Mr. Augustus Hamilton landed there for a few days in 1894. He obtained a new land shell among decaying leaves, and remarked on the contrast between the scarlet *Gaimardia* and the green *Ulva* to which it was attached.† A series from his collection was submitted by Mr. Suter to Mr. E. A. Smith, of the British Museum, who published an account of several of them.‡ Mr. Hamilton's excellent work, supplemented by further material which Dr. D. Colquhoun obtained, has served to represent the Macquarie Island fauna in Mr. Suter's Manual of the New Zealand Mollusca by the following 17 species:—

Plaxiphora superba Pilsbry.
Acmæa cantharus Reeve.
Nacella fuegiensis Reeve.
Nacella illuminata Gould.
Cantharidus pruinus perobtusus Pilsbry.
Lævilitorina hamiltoni Smith.
Lævilitorina caliginosa Gould.
Siphonaria lateralis Gould.
Laoma hamiltoni Suter.
Athoracophorus martensi Suter.
Philobrya meleagrina Bernard.
Modiolarca pusilla Gould.
Modiolarca smithi Suter.
Modiolarca trapezina Lamarck.
Lascæa miliaris Philippi.
Cyamium oblongum Smith.
Saxicava arctica Linne.

* Hedley.—Proc. Linn. Soc. N.S. Wales, xxxv., 1910, p. 9.
† Hamilton.—Trans. New Z. Inst. xxvii., 1894 (1895), p. 577. ‡ Smith.—Proc. Malac. Soc. iii., 1898, pp. 20-25.

Of these the *Acmæa*, *Athoracophorus*, and *Cyamium* were not taken by the Australasian Antarctic Expedition. The rest are represented under the same or other names in the following list. The known fauna is raised to 35 indigenous and one introduced mollusc, an European *Limax*. The following were collected from 1912 to 1914 by Mr. Harold Hamilton, a son of the pioneer investigator :—

Lepidopleurus kerguelensis Haddon.
Hemiarthrum setulosum Dall.
Plaxiphora aurea Spalowsky.
Schismope subantarctica Hedley.
Puncturella analoga Martens.
Margarella macquariensis Hedley.
Photinula coruscans Hedley.
Radiacmea macquariensis Hedley.
Nacella kerguelensis Smith.
Nacella delesserti Philippi.
Brookula sp.
Lævilitorina caliginosa Gould.
Lævilitorina hamiltoni Smith.
Eatoniopsis ainsworthi Hedley.
Tatea melvilli Hedley.
Friginatica pisum Hedley.
Trophon albolabratus Smith.
Turbonilla lamyi Hedley.
Phrixgnathus hamiltoni Suter.
Kerguelenia redimiculum Reeve.
Pronucula mesembrina Hedley.
Philippiella hamiltoni Hedley.
Chlamys subantarctica Hedley.
Chione mawsoni Hedley.
Rochefortia charcoti Lamy.
Rochefortia macquariensis Hedley.
Lasæa consanguinea Smith.
Kidderia pusilla Gould.
Kidderia macquariensis Hedley.
Gaimardia trapesina Lamarck var. *coccinea* Hedley.
Gaimardia smithi Suter.
Saxicava antarctica Philippi.

About a third of the mollusca reported from Macquarie Island extend to Kerguelen, and some range round the pole to the Falkland Islands and New Georgia.

Probably some here described as new will, in the future, be traced to other Subantarctic lands. And I expect that further search will add to the molluscan fauna of Macquarie Island, more deep-water and minute species.

Little information has reached me on the ecological aspect of the beaches at Macquarie Island. The range of the tide and temperature of the water will probably be discussed in another section of these reports.

In the narrative of the Expedition (II., p. 241) it is noted that " Very few stretches of what may be called ' beach ' occur on the island; the foreshores consisting for the most part of huge water-worn boulders or loose gravel and shingle. After a storm the sea piles up hundreds of tons of kelp on the shore, and for several days tangled masses like small islands drift about." The kelp growing on the rocks, as exposed at low tide, is shown on the plate facing p. 44 of " The Home of the Blizzard."

Now that Macquarie Island has been so fully examined, the Crozets probably remain the least zoologically known of the Subantarctic islands.

The systematic account of the species is as follows :—

Class PELECYPODA.

Pronucula mesembrina *sp. nov.*

(Plate I., figs. 1 and 2.)

Shell small, oblique, triangularly ovate, moderately inflated, inequilateral, clothed with a tough persistent buff epidermis. Beak prominent, set at about three-quarters of the length. Upper and central portion of the valve with fine, irregular, concentric growth lines, the lower half with about 50 delicate and crowded radial riblets. Interior brilliantly nacreous, with a silver lustre; the radials show an imprint, and denticulate the inner margin of the valve. Muscle scars not visible. Hinge with the chondrophore apart from the teeth, of which there are five tubercles and sockets on the posterior side and three on the anterior.

Length, 2·2; height, 1·7mm.

The species is represented by a single left valve, broken at the anterior edge. This was fast to the web of a worm tube, taken January 19th, 1912, at Aerial Cove, Macquarie Island, by Mr. H. Hamilton. This is the fourth member of its genus, the others being *P. decorosa* Hedley, from New South Wales; *P. hedleyi* Pritchard and Gatliff, from Tasmania; and *P. kermadecensis* Oliver, from the Kermadecs.

Leda oblonga *Pelseneer.*

Leda oblonga Pelseneer, Zool. " Belgica," Moll., 1903, p. 23. pl. vi., figs. 79, 80.

The type of this species came from the opposite end of Antarctica; but one entire shell and one single valve agree precisely with Pelseneer's figures and description, except that Mawson's specimens are 5mm. long, and the " Belgica's " only 4mm. These were dredged January 31st, 1914, in 358 fathoms ooze, off the Shackleton Ice-shelf in South Lat. 64° 44′ and East Long. 97° 28′.

Poroleda longicaudata *Thiele.*

Leda longicaudata Thiele, Deutsch. Südpol. Exped. xiii., 1912, p. 229, pl. xvii., fig. 22.

The sculpture is here stronger than in others of the genus. Large specimens are proportionately narrower than small ones, and the species grows larger than hitherto recorded, as a specimen from Station II. is 20mm. long, and another from Station X. is 21mm.

Three dredged, December 28th, 1913, in 288 fathoms, ooze, off the eastern barrier of Adelie Land, in South Lat. 66° 52′ and East Long. 145° 30′. Ten, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′. Four, January 29th, 1914, from 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 64° 44′ and East Long. 96° 13′.

Malletia sabrina *sp. nov.*

(Plate I., figs. 3, 4.)

Shell moderately solid, oblong, posterior side twice the length of the anterior; dorsal and ventral margins parallel, anterior end rounded; posterior end obliquely truncate; beaks prominent. Valves slightly gaping at each extremity. Epidermis thin, continuous, olive yellow. Surface glossy, with an iridescent sheen. Concentrically striated, irregularly and faintly for most of the disc, but closely and sharply near the umbo. An obscure angle indicates the escutcheon. The hinge has 11 teeth on the anterior side and 13 on the posterior. Length, 10·5; height, 6; breadth of conjoined valves, 4mm.

This most southern member of its genus is named in remembrance of an exploring vessel, the "Sabrina," which disappeared in these seas in 1839. Seven complete specimens, including the type, were taken January 29th, 1914, in 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13. Another, January 31st, 1914, in 358 fathoms, ooze, off the same glacier, in South Lat. 64° 44′ and East Long. 97° 28′. Again, a separate valve, December 28th, 1913, in 288 fathoms, ooze, off the Mertz Ice Tongue, in South Lat. 66° 55′, East Long. 145° 21′.

Silicula rouchi *Lamy.*

Silicula rouchi Lamy, 2nd Expéd. Antarct. Franç., 1911, Moll., p. 30, pl. i., figs. 24, 25.

Two specimens dredged December 28th, 1913, in 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Limopsis grandis *Smith.*

Limopsis grandis Smith, Nat. Antarct. Exped. ii., 1907, Moll., p. 5, pl. iii., fig. 7 ; and "Terra Nova" Exped., Moll., 1915, p. 76. *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 228, pl. xvii., figs. 14, 15.

A single specimen, 7mm. long, taken alive, December 28th, 1913, in 288 fathoms, ooze, off the Mertz Glacier Tongue, in South Lat. 66° 52′ and East Long. 145° 30′. Two odd valves, one grander than any yet reported, being 45mm. long and 38mm. high, dredged in 110 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 64° 44′ and East Long. 97° 28′.

Lissarca aucklandica *Smith.*

Lissarca aucklandica Smith, Collections "Southern Cross," 1902, p. 212, pl. xxiv., figs. 14, 15.

Three separate valves dredged, June 28th, 1912, in one fathom, Carnley Harbour, Auckland Islands.

Lissarca notorcadensis *Melvill and Standen.*

Lissarca notorcadensis Melvill and Standen, Trans. Roy. Soc. Edinb. xlvi., 1907, p. 144, figs. 14, 14A ; *Id.*, Scotia, Zool., v. 1907, p. 114, fig. 14 ; *Id.*, Smith, "Terra Nova" Exped., Moll., 1915, p. 75, pl. i., figs. 16, 17.

Arca gourdoni Lamy, 2nd Expéd. Antarct, Franç., 1911, Moll. p. 28, pl. i., figs. 21, 22.

Lissarca gourdoni Thiele, Deutsch. Südpol. Exped. xiii., 1912, p. 228, pl. xviii., fig. 3.

One specimen, 8mm. long and 6·5mm. high, is larger than any previously recorded.

Forty, October 4th, 1912, from 25 fathoms, hard bottom ; seven, December 21st, 1913, from 55-60 fathoms, hard bottom ; and again one, December 22nd, 1913, from 350-400 fathoms, ooze, all in Commonwealth Bay ; seven, December 28th, 1913, from 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′ ; seven, December 31st, 1913, from 157 fathoms, ooze, South Lat. 66° 32′ and East Long. 141° 39′ ; thirty-five, January 31st, 1914, in 110 fathoms, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Philobrya wandelensis *Lamy.*

Philobrya wandelensis Lamy, Bull. Mus. Hist. Nat., xii., 1906, p. 50 ; *Id.*, 1st Expéd. Antarct. Franç., 1906, Moll., p. 17, pl. i., fig. 15-16 ; *Id.*, *op. cit.*, 2nd Expéd. Franç., 1911, Moll., p. 24 ; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 146 ; *Id.*, *op. cit.*, xlviii., 1912, p. 361 ; *Id.*, Scotia Zool., v., 1907, p. 116.

Numerous specimens from 25 fathoms in Commonwealth Bay, where it was the most abundant bivalve ; four were dredged, December 14th, 1913, in 45-50 fathoms. Two specimens were collected by Dr. McLean in 1913 from 3 fathoms in the Boat Harbour, Commonwealth Bay.

Philippiella bagei *sp. nov.*

(Plate I., figs. 5, 6, 7.)

In Antarctic waters is developed *Philippiella*,* a genus the simplicity of whose features suggests that it may be either a primitive or a retrograde member of the subfamily Philobryinæ. Here I would include *P. ungulata* Pfeffer, *P. quadrata* Pfeffer, *P. limoides* Smith, *P. lævis* Thiele, *P. tumida* Thiele, *P. bagei* Hedley, and *P. orbiculata* Hedley. But I would now exclude *P. crenatulifera* Tate, and *P. rubra* Hedley, which, under a misapprehension of the original diagnosis, I formerly included (Proc. Linn. Soc. N.S.W., 1904, p. 208) here. For these I now propose a genus *Notomytilus*, type *Philippiella rubra* Hedley. The *Philippiella* proper are characterised by large size, profuse epidermis, smooth surface, thin shell, and weak, undeveloped, toothless hinge. The edentulous hinge is exactly correlated with a far southern habitat.

The ligament is elongate and horizontal, that is, it runs along the dorsal margin instead of descending obliquely across the hinge-plate as in *Hochstetteria*. There are neither anterior nor posterior crenulated areas nor dysodont teeth as in *Philobrya* and *Hochstetteria*. The anterior dorsal margin of both valves in *Philippiella* project and interlock, thus acting as cardinal teeth. The anterior end of the valve is less abbreviated than in related genera. Apart from size and the prodissoconch shield, there is a striking resemblance between *Philippiella* and *Meleagrina*. Cardinal features, so useful for the discrimination of *Philobrya*, are here wanting, so that contour is left as the chief guide in distinction of species.

The valve of *P. bagei* is ovate acuminate, with the anterior side considerably developed. The margin of the right is sometimes bent in, while the left over-reaches it. Prodissoconch small, flat, semi-lunate. Surface of adult smooth, on which fine concentric and radial threads form microscopic reticulations. Byssus, a bunch of numerous strings leading through a narrow chink high on the anterior side. Epidermis, long dense imbricating leaves like that of the pearl-mussels, projecting far past the margin of the valve. Each leaf has a mid-rib, and this alone continues on the upper part of the valve. Inner ventral margin smooth. This species is like, but larger than, *P. limoides*, in which the anterior and dorsal sides meet at a more acute angle, the valve is deeper, and the crenulations on the inner ventral margin strong. Height, 13·5; length, 12; depth of conjoined valve, 7mm.

This shell is named in honour of Captain R. Bage, of the main base party, who subsequently was killed in action at the Dardanelles at the early age of 27. He was leader of the southern sledge party, and was one of those who volunteered to endure a second Antarctic winter for the sake of his lost leader.

A couple of dozen were taken alive attached to weed and shell in 3 and 25 fathoms; one, December 14th, 1913, in 45-50 fathoms; and, again, one in 55-60 fathoms, December 21st, 1913, all in Commonwealth Bay.

* Pfeffer.—Jahrb. Hamb. Wiss. Anst., iii., 1887, p. 119.

Philippiella hamiltoni *sp. nov.*

(Plate I., figs. 8, 9, 10, 11.)

Shell rather large and solid, inflated, unilateral, in shape passing from trapezoidal when young to mussel-form in the adult. Umbo terminal, projecting, dorsal margin straight, posterior and ventral margins rounded, anterior side concave above, convex below. Colour buff. Epidermis dense, persistent, developing about a dozen radiating rows of long dense bristles which project beyond the margin; between the rows the surface is closely latticed with transverse lamellæ. Under the epidermis the surface of the valve is concentrically irregularly striated. Prodissoconch a simple semi-circular unsculptured plate slightly bulged. Ligament visible externally along half the dorsal margin. Hinge with a single stout tuberculate tooth in the anterior extremity of the left valve, which is independent in youth, but in the adult coalesces with the margin of the valve. Beneath it is excavated in the hinge plate a broad shallow byssal chamber. All the inner margin of the valve is smooth. Height, 6; length, 4·5mm.

Thirty specimens were found by Mr. Harold Hamilton, after whom it is named, some embedded in sand and spongy growth below low water, January 2nd, 1913, in Lusitania Bay; others on an old anchor recovered February 12th, 1913, at the Nuggets, Macquarie Island.

This species differs from *P. meleagrina*,* for which it has, I think, been mistaken, by being much larger, by its *Mytilus* shape, by the ligament being continued beneath the predissoconch to the anterior side, and by being more excavate around the byssus orifice.

Philippiella orbiculata *sp. nov.*

(Plate I., figs. 12, 13.)

Shell large, compressed, discoidal, anterior side well developed. Colour buff. Surface glossy, concentrically engraved. Heavily draped with epidermis toward the margin, whence lines of epidermis stalks radiate to the umbo. Inner margin of the valve finely crenulate. This, which is perhaps the largest of the *Philobryinæ*, has the following dimensions:—Height, 15; length, 15; depth of conjoined valves, 5mm.

Four, including type, December 28th, 1913, from 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′; three more, January 22nd, 1914, from 120 fathoms, stony ground, in South Lat. 66° 8′ and East Long. 94° 17′.

* Bernard.—Journ. de Conch., xlv., 1897, p. 12, pl. i., fig. 3.

Adacnarca nitens *Pelseneer.*

Adacnarca nitens Pelseneer, Voy. "Belgica" Moll., 1903, pp. 24, 41, pl. vii., figs. 83-88; *Id.*, Lamy, 1st Expéd. Antarct. Franç., 1906, Moll., p. 19; *Id.*, Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 5, pl. iii., fig. 6; *Id.*, Mortensen, Deutsch. Südpol. Exped. Zool., xi., 1909, p. 20, pl. ii., fig. 2; *Id.*, Lamy, 2nd Expéd. Antarct. Franç., 1911, Moll., p. 27; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 3; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 228; *Id.*, Smith, "Terra Nova" Exped. Zool., 1915, p. 76.

This species develops a wide range in depth and longitude, comparable to that of *Neobuccinum eatoni* or *Chlamys colbecki*. The largest individuals of this collection reach the size noted by Smith of length 6·5 and height 7mm. The mollusc clings to stalks of plants and such objects with a few sparse byssus threads.

One, October 4th, 1912, in 25 fathoms; one, December 14th, 1913, in 45-50 fathoms; one, December 21st, 1913, in 55-60 fathoms; and one, December 22nd, 1913, in 350-400 fathoms—all in Commonwealth Bay. Again, eight, December 28th, 1913, in 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′; two, December 31st, 1913, in 157 fathoms, South Lat. 66° 32′ and East Long. 141° 39′; three, January 27th, 1914, in 120 fathoms, stony ground, in Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′; two, January 29th, 1914, in 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13′; and two, January 31st, 1914, in 110 fathoms, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Chlamys colbecki *Smith.*

Pecten colbecki Smith, "Southern Cross" Coll., 1902, p. 212, pl. xxv., fig. 11; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 146; *Id.*, *Ibid.*, Scotia Zool., v., 1907, p. 117; *Id.*, Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 6, pl. iii., fig. 9; *Id.*, Lamy, 2nd Expéd. Antarct. Franç., 1911, Moll., p. 23; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, pp. 1, 3; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 225, pl. xvii., fig. 1.

Chlamys colbecki Smith, "Terra Nova" Exped., ii., Zool., 1915, p. 77.

Pecten racovitzai Pelseneer, Voy. "Belgica," Moll., 1903, p. 27, pl. viii., figs. 101, 102; *Id.*, Lamy, 1st Expéd. Antarct. Franç., 1906, p. 16, pl. 1., figs. 19-21.

This species continues to develop a circumpolar range. The largest of the collection here examined has a height of 85 and a length of 90mm.

It is significant of the vertical uniformity of the temperature in these seas that the finest example should come from the deepest haul, and that though, as Murray says, abundant in shallow water.

A few fragments, September 3rd, 1912, and January 20th, 1913, from 15-25 fathoms, Commonwealth Bay. A fragment, January 2nd, 1914, from 230 fathoms, ooze, in South Lat. 65° 48′ and East Long. 137° 32′. Numerous specimens, some alive, January 29th, 1914, from 325 fathoms, ooze, off the Shackleton Ice-shelf. A few, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′; and a few more, including the large example already mentioned, January 31st, 1914, from 358 fathoms, in ooze, off the Shackleton Ice-shelf, South Lat. 64° 44′ and East Long. 97° 28′. A fragment, January 31st, 1914, from 110 fathoms, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′. A single valve was obtained by Mr. C. T. Harrisson in 270 fathoms, off the Glacier near the Western Base.

Chlamys subantarctica *sp. nov.*

(Plate II., figs. 14, 15.)

Shell large, solid, oval, moderately inflated. Auricles nearly equal. Colour pink, paler towards the margins. At an inch from the umbo there are 27 radial ribs passing from simple to compound, so that at the margin each rib is split into a bundle of three or four riblets, while one or two similar riblets occupy each intervening furrow. From less worn parts it appears that these furrows were closely latticed by concentric laminæ. Height, 80; length, 75; depth of single valve, 15mm.

This is very close to a recent Tasmanian species identified as *C. antiaustralis* Tate,* but is rather shorter in proportion to height and has the auricles more coarsely ribbed.

The original of this description is a rather worn single valve with a large gap in the margin. It was dredged December 4th, 1913, in 14 fathoms, sandy bottom, Lusitania Bay, Macquarie Island. Perhaps the young of this is represented by a perfect specimen 6mm. high, of a cadmium yellow colour, from an anchor recovered by the "Rachel Cohen," off the Nuggets, Macquarie Island, in 12 fathoms.

Except *C. colbecki*, no species from so high a latitude reaches this size.

Lima closei *n. sp.*

(Plate II., fig. 16.)

Shell small, slightly oblique, thin, rather broad and shallow. Colour white. Sculpture, about 40 narrow close-set radial ribs, more crowded at the side than in the centre, but absent from the auricles; these carry small sharp scales and are crossed by dense fine growth lines. Umbones prominent and central. Interior showing a faint imprint of the exterior ribs. Height, 10·5; length, 8·5; depth of single valve, 2mm.

* Hedley.—"Endeavour" Results, i. 1911. p. 96.

Compared with *L. hodgsoni* this species is less inflated, broader in comparison to length, and more delicately sculptured.

One valve was procured, January 31st, 1914, from 358 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 64° 44′ and East Long. 97° 28′. It is named in honour of Mr. J. H. Collinson Close, F.R.G.S., an active member of the Main Base party.

Lima hodgsoni *Smith.*

Lima hodgsoni Smith, Nat. Antarct. Exped., ii., 1907, p. 6, pl. iii., fig. 8; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, pp. 2, 3; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 226; *Id.*, Smith, " Terra Nova " Exped., Zool., ii., 1915, p. 77.

Six were taken, December 22nd, 1913, in 350-400 fathoms, on hard ground in Commonwealth Bay. Ten, December 28th, 1913, in 288-300 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′. Seven, January 27th, 1914, in 120 fathoms, stony ground, in South Lat. 66° 8′ and East Long. 95° 27′, one pair of which being 32mm. high is larger than previous records. Two, December 31st, 1913, from 157 fathoms, in South Lat. 66° 32′ and East Long. 141° 39′; and a single valve, January 31st, 1914, from 110 fathoms, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Lima ovalis *Thiele.*

Lima ovalis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 226, pl. xvii., fig. 5.

Half a dozen empty shells and odd valves were dredged, September 4th, 1912, in 25 fathoms, Commonwealth Bay. These attain a larger size than the type, being 9mm. in height and 7·5mm. in breadth.

Gaimardia smithi *Suter.*

(Plate II., figs. 17, 18, 19.)

Modiolarca bicolor Smith, Proc. Malac. Soc., iii., 1898, p. 25, fig. 3 (not *Modiolarca bicolor* Martens, 1885).

Modiolarca smithi Suter, Manual N.Z. Moll., 1913, p. 895, pl. lii., fig. 7.

A single specimen was collected, February 22nd, 1912, by Mr. H. Hamilton, in Hassellborough Bay, Macquarie Island. On the occasion of its discovery it occurred more plentifully to Mr. A. Hamilton.

Gaimardia trapezina *Lamarck.*

var. coccinea *var. nov.*

(Plate II., figs. 20, 21, 22.)

Modiola trapesina Lamarck, An. s. Vert., vi., 1819, p. 114; *Id.*, Delessert, Recueil., 1841, pl. xiii., fig. 7.

Gaimardia trapesina Gould, Am. Expl. Exped., xii., Moll., 1852, p. 459, pl. xli., fig. 568.

Phaseolicama trapezina Hupe, Hist. Chile, Zool., viii., 1854, p. 323, pl. viii., fig. 9.

Modiolarca trapezina H. and A. Adams, Gen. Rec. Moll., ii., 1857, p. 520, pl. cxxii., fig. 1; *Id.*, Chenu, Man. de Conch., ii., 1862, p. 156, figs. 777-9; *Id.*, Smith, Phil. Trans. Vol., 168, 1879, p. 190, and Chall. Rep. Zool., xiii., 1885, p. 279; *Id.*, Martens and Pfeffer, Jahrb. Hamburg Wiss. Anst., iii., 1887, p. 127, pl. iv., fig. 13; *Id.*, (+ *M. crassa* + *M. cannellieri* + *M. lephayi* + *M. savatieri* + *M. fuegiensis* + *M. hahni*, all of M. & R., fide Stempell), Rochebrune and Mabille, Miss. Scient. Cap Horn, 1889, Moll., pp. 120-123, pl. vii., figs. 1, 2, 3, 4, 5, 6, 7; *Id.*, Smith, Proc. Malac. Soc., iii., 1898, p. 24; *Id.*, Melvill and Standen, Journ. of Conch., ix., 1898, p. 104, and x., 1901, p. 47; *Id.*, Stempell, Zool. Jahrb. Suppl., iv., 1899, p. 327; *Id.*, Pelseneer, Voy. "Belgica," Moll., 1903, p. 11; *Id.*, Lamy, Ann. Inst. Oceanograph, iii., 1911, p. 44; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 252; *Id.*, Suter, Man. N.Z. Moll., 1913, p. 896, pl. lxiii., fig. 6; *Id.*, Lamy, Bull. Mus. Hist. Nat., xxi., 1915, p. 75.

Gaimardia trapezina Iredale, Trans. N.Z. Inst., xlviii., (1914) 1915, p. 487.

At Macquarie Island, this is abundant. Mr. A. Hamilton writes *—"The most attractive shell is a bright scarlet bivalve which attaches itself to the bright green Ulva in the rock pools and to the kelp in the deeper water, it is very plentiful."

According to Mr. E. A. Smith, it has a wide circumantarctic range, from Patagonia, the Falkland Islands, South Georgia, and Kerguelen to Macquarie Island. The eight forms, separated by Mabille and Rochebrune but united by Stempell, speak for the variability of the species. A large series from Macquarie are constant in form and colour, and, judging from literature, so differ from South American representatives as to be worth, at least, varietal distinction. Accordingly, it is now proposed to term it var. *coccinea*. All the Macquarie Island shells are uniform vermilion outside and peach-blossom pink within. South American specimens are described as yellow and brown. The largest of 300 Macquarie shells is only 19mm. long, whereas Lamarck's type is 22mm. and *Modiolarca crassa* is 32mm. long. The drawings of Delessert and Gould show a form much longer in proportion to height. And if Chenu's figure is to be trusted the hinge of Lamarck's species differs from that of the Macquarie Island shell.

* Hamilton.—Trans. N.Z. Inst., xxvii., 1894 (1895), p. 577.

It has been shown by Mr. T. Iredale * that *Modiolarca* was first introduced by Gray as a genus name for *Musculus impactus*. For the species under consideration it therefore becomes necessary to adopt Gould's *Gaimardia*.

Among recent writers Pelseneer has emphasised the distinction from the *Mytilidæ* of this family, which should now be called the *Gaimardiadæ*.

Kidderia macquariensis *sp. nov.*

(Plate II., fig. 23, 24.)

Shell small, solid, oblong; dorsal and ventral margins nearly straight and parallel, posterior margin rounded, anterior briefly produced. Colour white to cream against which the orange-brown prodissoconch is sharply contrasted, sometimes brick red on the posterior or dorsal area. Sculpture fine and coarse growth lines, the latter crumpling the surface. A few faint radial threads sometimes appear about the centre of the valve. Surface glossy. Beaks at three-quarters of the length, incurved approaching. Length, 8; height, 4; depth of conjoined valves, 3·5mm.

Mr. H. Hamilton found three, February 22nd, 1914, at Hassellborough Bay, and 20 in April, 1912, on a sandy beach near the north end of Macquarie Island.

This species has been accepted in New Zealand for *Cyamium oblongum* Smith, but it does not harmonise with the original account and shadow-picture of that shell. *Modiolarca bicolor* Martens, from New Georgia, seems to be nearly allied to, and possibly identical with, this new species.

Kidderia pusilla *Gould.*

(Plate II., figs. 25, 26, 27.)

Mytilus pusillus Gould, Proc. Bost. Soc. Nat. Hist., iii., 1850, p. 345; *Id.*, U.S. Expl. Exped., xii., 1852, p. 455, pl. xliv., fig. 585.

Modiolarca pusilla Dall, Bull. U.S. Nat. Museum, iii., 1876, p. 47; *Id.*, Smith, Phil. Trans. Roy. Soc., vol. 168, 1879, p. 191; *Id.*, Mabille and Rochebrune, Miss. Scient. Cap Horn, 1889, Moll., p. 124; *Id.*, Smith, Proc. Malac. Soc., iii., 1898, p. 24; *Id.*, Melvill and Standen, Journ. of Conch., ix., 1898, p. 104; *Id.*, Suter, Subantarctic Is. of N.Z., i., 1909, p. 44, and Manual N. Z. Moll., 1913, p. 895, pl. lii., fig. 6.

On the one hand I note that there are various discrepancies in size, form, and colour between a series from Macquarie Island and the account of Patagonian specimens given by Gould. On the other hand Dr. Dall has written that "Gould's figure does not well represent his typical specimens," and Mr. E. A. Smith has recognised *K. pusilla* from Macquarie Island.

* Iredale.—Proc. Malac. Soc., xi., 1914, p. 173.

Compared with Gould's illustration the Macquarie shells are more regularly oval, the dorsal and ventral margins more parallel and the anterior end rounder. Instead of being bright red, ours are chocolate brown edged on the margin with buff. Ours seem smaller than the type, for the largest among a couple of hundred shells are only 4 instead of 5mm. long, and $2\frac{1}{2}$ instead of 3mm. high. A Macquarie Island shell is, therefore, here figured to illustrate the discrepancy, if such there be.

It was found to be common in clusters on rocks above and below high-water mark and on kelp in Garden Bay and Hassellborough Bay, Macquarie Island, by Mr. Harold Hamilton.

Axinopsis debilis *Thiele.*

Axinopsis debilis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 232, pl. xviii., fig. 25.

One specimen, 6·5 long, 7 high, and 3mm. in depth of conjoined valves, was dredged January 31st, 1914, in 358 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 64° 44′ and East. Long. 97° 28′. Two others, January 29th, 1914, in 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13′.

Laternula elliptica *King and Broderip.*

Anatina elliptica King and Broderip, Zool. Journ., v., 1831, p. 335; *Id.*, Griffith and Pidgeon, Anim. Kingdom, xii., 1834, p. 595, pl. xx., fig. 3; *Id.*, Reeve, Conch, Icon., xiv., 1860, *Anatina*, pl. ii., fig. 14; *Id.*, Smith, Chall. Rep. Zool., xiii., 1885, p. 76; *Id.*, Smith, "Southern Cross" Coll., 1902, p. 210, pl. xxv., figs. 9, 10; *Id.*, Lamy, 1st Expéd. Antarct. Franç., 1906, p. 14; *Id.*, Smith, Nat. Antarct. Exped., ii., 1907, Lamell., p. 1, pl. iii., fig. 3; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 151; *Id.*, Scotia Zool., v., 1907, p. 121; *Id.*, Lamy, 2nd Expéd. Antarct. Franç., 1911, Moll., p. 21; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 3; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 256; *Id.*, Smith, "Terra Nova" Exped., Zool., ii., 1915, p. 78; *Id.*, Lamy, Bull. Mus. Hist. Nat., xxi., 1915, p. 74.

Anatina prismatica Sowerby, Proc. Zool. Soc., 1834, p. 87.

A considerable series, which vary a good deal in proportion of height to length, of empty shells and separate valves were taken, September 4th, 1912, in 12 fathoms, in Commonwealth Bay, on a bottom of small stones and weed.

The genus *Laternula* * was introduced for *Mya truncata* Linne, and *Solen anatinus* Linne. The former being a typical *Mya*, it is convenient to regard *S. anatinus* as the type of *Laternula* taking precedence, as Dr. Dall has already remarked, over *Anatina* proposed for the same type by Lamarck in 1809.

* Bolten.—Mus. Bolt., ii., 1798, p. 155.

Pholadomya adelaidis *sp. nov.*

(Plate III., figs. 31, 32.)

In other features than size and sculpture this resembles *P. mawsoni*. Shell ovate-oblong, little inflated, slightly gaping posteriorly. Surface with about 38 lines of radials, the intervals thinly granose. Length, 10 ; height, 8 ; depth of conjoined valves, 5mm.

A single specimen with both valves intact was dredged, December 28th, 1913, in 288 fathoms, off the Eastern Barrier of Adelie Land, in South Lat. 66° 52′ and East Long. 145° 30′. The anterior part of left valve, twice the size of type, January 28th, 1914, from 240 fathoms, in ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Pholadomya antarctica *sp. nov.*

(Plate III., fig. 28.)

Shell small, ovate, thin, inflated, opaque posterior side twice as long as the anterior. Surface uniformly covered with dense, small, sharp grains arranged radially. Lunule not defined. Interior nacreous, no pallial sinus. Chondrophore projecting as a small spoon process beneath the beak. Length, 12 ; height, 8·5 ; breadth of single valve, 4mm.

A single right valve, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Pholadomya mawsoni *sp. nov.*

(Plate III., figs. 29, 30.)

Shell rhomboid-oval, small, very thin, glassy, translucent, beaks at the anterior third, valve medially inflated, anterior end short and pouting, posterior end compressed, square-ended above, below rounded to the deeply-curved ventral margin, dorsal margin rather straight, slightly gaping at the posterior end. Left valve over-reaching the right ventrally so that the margin of the right is often tucked in under the left. Beaks low, inflated, incurved anteriorly, not eroded Lunular area small, smooth, concave. Colour uniform pearl grey. Surface with a silken sheen, devoid of granules, sculptured by irregular, delicate, concentric growth striæ and traversed by from 25 to 30 narrow radiating lines of erect epidermal bristles. These extend across the whole valve except the lunule and increase by intercalation. Muscular impressions not visible owing to the thinness of the shell. An internal resilium lies upon an ossicle and is immediately beneath the beaks. Length, 13 ; height, 9 ; depth of conjoined valves, 6mm.

This, one of the most interesting shells of the collection, is dedicated to the distinguished leader of the Expedition, Sir Douglas Mawson.

Twelve complete specimens, including the type, were dredged, December 28th, 1913, from 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′. Also a single valve, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Thracia meridionalis *Smith.*

Thracia meridionalis Smith, Chall. Rep. Zool., xiii., 1885, p. 68, pl. vi., fig. 4; *Id.*, Lamy, 1st Expéd. Antarct. Franç., 1906, Moll., p. 15; *Id.*, 2nd Expéd., 1911, p. 22; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 3; *Id.*, Smith, "Terra Nova" Exped., ii., 1915, p. 78.

Mysella? truncata Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 230, pl. xviii., fig. 18.

One complete specimen, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier Tongue in Adelie Land, South Lat. 66° 55′ and East Long. 145° 20′. Another, January 27th, 1914, from 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′. Another, January 29th, 1914, from 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13′.

Cuspidaria infelix *Thiele*

Cuspidaria infelix Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 233, pl. xviii., fig. 28.

Four separate and broken valves, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Cuspidaria plicata *Thiele.*

Cuspidaria plicata Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 233, pl. xviii., fig. 30.

The type of this is only 8mm. long. A series before me includes a perfect shell 6mm. long, two odd valves about 15mm. long, leading to a large broken specimen which is still 30mm., and probably reached 35mm. in length. These were dredged, December 28th, 1913, in 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Leptomya perconfusa *Iredale.*

Tellina lintea Hutton, Catalogue Marine Mollusca of New Zealand, 1873, p. 67.

Leptomya lintea Suter, Manual New Zealand Mollusca, 1913, p. 956, pl. liv., fig. 14.

Leptomya perconfusa Iredale, Trans. N.Z. Inst., xlvii., (1914) 1915, p. 489.

Three specimens, June 28th, 1912, from 1 fathom, in Carnley Harbour, Auckland Islands.

Cyamium rotundatum *Thiele.*

Cyamium rotundatum Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 231, pl. xviii., fig. 20.

One specimen dredged, December 14th, 1913, in 45-50 fathoms, Commonwealth Bay; two, December 28th, 1913, in 288 fathoms, ooze, off the Eastern Barrier of Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′; and one, January 28th, 1914, in 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Touching *Cyamium*, it may be noted that Thiele (*op. cit.*, p. 270) has transferred *Diplodonta incerta* Smith to *Cyamium* rather than to *Cyamiomactra*. Judging from nomenclature there is an insistent demand for the latter genus because, subsequent to its introduction by Bernard in 1897, it has been independently recognised as *Heteromactra* by Lamy in 1906, as *Acolus* by Jukes Brown in 1913, and as *Jukesena* by Iredale in 1915.

Venericardia astartoides *von Martens.*

(Plate III., figs. 33, 34.)

Cardita astartoides von Martens, Sitz. Gesell. Nat. Fr. Berlin, 1878, p. 25; *Id.*, Smith, Chall. Rep. Zool., xiii., 1885, p. 212, pl. xv., fig. 2; and *Id.*, Coll., "Southern Cross," 1902, p. 211; *Id.*, Nat. Antarct. Exped., ii., 1907, Lamell., p. 2; and *Id.*, "Terra Nova" Exped., ii., 1915, Moll., p. 77; *Id.*, Lamy, 1st Expéd. Antarct. Franç., Moll., 1906, p. 14; and 2nd Expéd. Antarct. Franç., Moll., 1911., p. 21; and Bull. Mus. Hist. Nat., xxi., 1915, p. 74; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911., Moll., p. 3; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 230, pl. xviii., fig. 10.

The series gathered by this Expedition range from 6 to 29mm. in length. It shows that as the species increases in size the radial sculpture becomes fainter and, as Mr. Smith has already observed, the height increases in proportion to the length. Without the aid of a connecting series the younger individuals would scarcely be recognised to be the same species as the adult. An illustration of a half-grown example, 17mm. long and 13mm. high, is, therefore, here provided to assist identification.

One living shell was dredged, January 27th, 1914, from 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′. Another and some odd valves, January 31st, 1914, from 110 fathoms, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Ptychocardia vanhoffeni *Thiele.*

Ptychocardia vanhoffeni Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 232, pl. xviii., fig. 24.

One right valve, 10mm. high, dredged, December 21st, 1913, in 55-60 fathoms, Commonwealth Bay.

Ptychocardia rudis *sp. nov.*

(Plate III., figs. 35, 36, 37.)

Shell rhombo-cordate, much inflated, thin, radially bicarinate, dorsal margin short, posterior truncate, ventral bisinuate, anterior projecting but with a median insinuation. Colour buff. Umbo prominent, incurved, polished. Lunule large, prominent, radially striated, limited by a wide and shallow furrow. Sculpture, the larger carina is median, projecting more than its posterior fellow, the whole valve overrun by sharp elevated threads separated by rather more than their interstices. Increasing by intercalation the threads amount at the margin to about 66. The interior is almost nacreous, ribbed by the impression of the external sculpture. Muscle scars invisible. Hinge with two small divergent cardinals in each valve. Height, 8 ; length, 6 ; breadth of conjoined valves, . 6·5mm.

This species is a little shorter and more strongly featured than *P. vanhoffeni*, the median keel projects further and the radial threads are sharper and closer.

Ten specimens dredged, December 28th, 1913, in 288 fathoms, ooze, off the Mertz Glacier, Adelie Land, in South Lat, 66° 52′ and East Long. 145° 30′.

Pseudokellya stillwelli *sp. nov.*

(Plate III., figs. 38, 39.)

Shell small and frail, cordate-orbicular. Colour shading from pearl grey on the umbones to buff at the margins. The entire valve is sculptured by very close and very small radiating threads which increase in size as growth proceeds ; at irregular intervals these are crossed by widely-spaced concentric growth lines. Ventral margin finely crenulated by the radial sculpture. The hinge has in the right valve one cardinal and one lateral and in the left two small cardinals and one lateral tooth. Height, 5·5 ; length, 5·5mm.

This is named in honour of Mr. F. L. Stillwell, a geologist of the Main Base party.

Judging from illustrations it is near to *P. cordiformis* Smith, but is narrower, more symmetrical, and with finer sculpture. It is evidently a smoother shell than *P. gradata* Thiele.

One valve and some fragments, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′. Another valve and fragments, January 27th, 1914, from 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′.

Kellia nimrodiana *Hedley.*

Kellia nimrodiana Hedley, Brit. Antarct. Exped., ii., 1911, p. 4, pl. 1., figs. 1-4.

From Commonwealth Bay : two, September 4th, 1912, from 25 fathoms, and one, December 21st, 1913, from 55 to 60 fathoms.

Rochefortia charcoti *Lamy.*

Montaguia charcoti Lamy, Bull. Mus. Hist. Nat., xii., 1906, p. 46 ; *Id.*, Lamy, 1st Expéd. Antarct. Franç., Moll., 1906, p. 13, pl. i., figs. 13, 14.

Montaguia turqueti Lamy, Bull. Mus. Hist. Nat., xii., 1906, p. 47.

Tellimya charcoti Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 269.

Eight specimens, the largest 2mm. long, were caught in the web of a worm tube taken January 19th, 1912, at Aerial Cove, Macquarie Island, by Mr. H. Hamilton.

These correspond well to Dr. Lamy's figure of a species from Graham's Land on the opposite coast of Antarctica.

Two generic names have already been applied to this species. Reasons for discarding both and adopting *Rochefortia* are related by Dr. W. H. Dall, Trans. Wagn. Inst., iii., 1900, p. 1158.

Rochefortia macquariensis *sp. nov.*

(Plate IV., figs. 40, 41.)

Shell small, thin, rather inflated, inequilateral, the ventral and posterior margins rounded, the anterior more pointed. Colour white under a thin cream-coloured epidermis. Surface with a nacreous lustre, sculptured by very fine and close concentric threads. Length, 3·3 ; height, 2·7mm.

Three specimens from a worm tube collected January 19th, 1912, at Aerial Cove, Macquarie Island, by Mr. H. Hamilton.

This seems related to *Tellimya ovalis* Thiele, from the Davis Sea, but has a more prominent umbo and the anterior side more sharply produced.

Lasæa consanguinea *Smith.*

(Plate IV., figs. 42, 43, 44, 45, 46.)

Kellia consanguinea Smith, Phil. Trans. Roy. Soc., vol. 168, 1879, p. 184, pl. ix., fig. 20.

Lasæa miliaris var. Smith, Proc. Malac. Soc., iii., 1898, p. 23.

Lasæa consanguinea Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 149 ; *Id.*, Lamy, Ann. Inst. Oceanograph, iii., 1911, p. 45 ; *Id.*, Thiele, Deutsch. Südpolar. Exped., xiii., 1912, p. 255, pl. xviii., fig. 14.

In 1898 Mr. Smith was inclined to reduce this form to a variety of *L. miliaris* Philippi, but Dr. Thiele has since refigured both to show the distinction in contour between them. As Mr. Smith wrote, " the dentition is a little different also," I have here figured the

hinge of a Macquarie Island specimen together with the hinge (figs. 45, 46) of *L. australis* from New South Wales for comparison. The habits of an allied, if not identical, species on St. Paul Island are described by Velain.*

Mr. H. Hamilton gathered this *Lascea* on Macquarie Island, on rocks between tide marks, associated with *Gaimardia pusilla*.

Chione mawsoni *sp. nov.*

(Plate IV., figs. 47, 48, 49, 50.)

Shell very solid, oblong ovate, umbo at about two-fifths of the length, varying both in contour, sculpture and colour. Externally the colour is a dull white, internally buff or a rich purple which may either stain the margin and the muscular impressions or be suffused over the whole interior. Sculpture ranging from a predominance of radial to a predominance of concentric lines. Usually the surface is comparatively smooth for a distance of about 12mm. from the umbo where it is engraved by about 120 fine, shallow, radiating grooves, parted by rather wider flat interspaces, crowded laterally and spaced medially. External to this area there may be a sudden change to coarse elevated, irregular, close-set, concentric cords, grouped by deeper furrows into bundles of four or five and each composed of an aggregate of smaller fibres. On the posterior dorsal region these cords rise higher. In another case the concentric sculpture in high relief is absent, the valve is comparatively smooth and radial striæ prevail over the whole disk.

Lunule long and narrow, limited by a deeply-incised groove. Sinus short, horizontal, and pointed. Length, 37 ; height, 29 ; depth of conjoined valves, 20mm. A second example is 40 × 32 × 19 ; and a third, 31 × 28 × 18.

Of Mr. H. Suter I inquired if this was the species from the Auckland Islands which he described as *Cytherea subsulcata*. He replied that the *C. subsulcata* differed by being more rounded with a more coarse sculpture which extended to the umbo, and that the Macquarie shell was new to him. *Venus antarctica* Velain, from St. Paul,† is a much rounder shell than this.

Twenty-six specimens were dredged, December 4th, 1913, in 14 fathoms, sandy bottom, in Lusitania Bay, Macquarie Island.

Saxicava antarctica *Philippi.*

(Plate IV., fig. 51, 52, 53.)

Saxicava antarctica Philippi, Archiv. f. Naturg., 1845, p. 52 ; *Id.*, Smith, Proc. Zool. Soc., 1881, p. 40 ; *Id.*, Martens and Pfeffer, Jahrb. Hamburg Wiss. Anst., iii., 1887, p. 113, pl. iv., fig. 2 ; *Id.*, Rochebrune, Miss. Scient. Cap Horn, Moll.,

* Velain.—Archiv. Zool. Expér., vi., 1878, p. 136. † Velain.—Arch. Zool. Expér., vi., 1878, p. 138, pl. v., figs. 21, 22.

1889, p. 102; *Id.*, Melvill and Standen, Journ. of Conch., ix., 1898, p. 105, and x., 1901, p. 47; *Id.*, Stempell, Zool. Jahrb. Suppl., iv., 1899, p. 240; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvii., 1907, p. 151.

The form thus identified attains a length of 8mm. A dozen were found by Mr. H. Hamilton, at Macquarie Island; some among worm tubes and sand below low tide level in Garden Bay; some embedded in growing sponges below low tide level in Lusitania Bay; and a small pair attached to a worm tube in Aerial Cove.

Class AMPHINEURA.

Lepidopleurus kerguelenensis *Haddon.*

Leptochiton kerguelenensis Haddon, Chall. Rep. Zool., xv., 1886, p. 12, pl. i., fig. 3.

Leptochiton pagenstecheri Martens and Pfeffer, Jahrb. Hamburg Wiss. Anst., iii., 1887, p. 107, pl. iii., fig. 3.

Lepidopleurus kerguelenensis Pilsbry, Man. Conch., xiv., 1892, p. 12, pl. i., figs. 14-17; *Id.*, Thiele, Deutsch. Südpol. Exped., x., 1908, p. 9, and Deux. Expéd. Antarct. Franç., Moll., 1911, p. 33; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlviii., 1914, p. 343.

Six specimens, the largest 5mm. long, were taken on rocks at Macquarie Island by Mr. H. Hamilton.

Hemiarthrum setulosum *Dall.*

Chiton castaneus Gould, Am. Expl. Exped., xii., Moll., 1852, p. 326, pl. xxvii., figs. 4-11 (preoccupied by Wood, 1815, and by Quoy and Gaimard in 1834).

Hemiarthrum setulosum Dall, Bull. U.S. Nat. Mus., ii., 1876, p. 44, and iv., 1878, p. 314; *Id.*, Smith, Phil. Trans., vol. 168, 1879, p. 183; *Id.*, Haddon, Chall. Rep. Zool., xv., 1886, p. 14, pl. i., fig. 4, pl. ii., fig. 4; *Id.*, Martens and Pfeffer, Jahrb. Hamburg Wiss. Anst., iii., 1887, p. 108, pl. iii., fig. 4.

Acanthochiton couthouyi + *A. stygma* Rochebrune, Miss. Scient. Cap Horn, 1889, Moll., p. 133, pl. ix., fig. 2.

Hemiarthrum setulosum Pilsbry, Man. Conch., xiv., 1892, p. 20, pl. v.; *Id.*, Thiele, Deutsch. Tiefsee Exped., Bd. ix., 1906, p. 330, and Deutsch. Südpol. Exped., x., 1908, p. 11, pl. i., figs. 4-12, and Deux. Expéd. Antarct. Franç., Moll., 1911, p. 33; *Id.*, Lamy, Bull. Mus. Oceanograph., iii., 1911, p. 40; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlviii., 1914, p. 343; *Id.*, Bull. Mus. Hist. Nat., xxi., 1915, p. 68.

This small brown chiton was discovered in the Straits of Magellan, rediscovered at Kerguelen Island, and subsequently reported from New Georgia, South Orkneys, and Grahams Land. It now makes an appearance in the Australian Quadrant.

Two dozen were gathered, November 17th, 1912, by Mr. H. Hamilton, at the north end of Macquarie Island. He noted that the form was "abundant on rocks washed by the sea at low water."

Notochiton mirandus *Thiele.*

Notochiton mirandus Thiele, Deutsch. Tiefsee Exped., ix., 1906, p. 332, pl. xxix., figs. 11-16; *Id.*, Thiele, Deutsch. Südpol. Exped., Zool., x., 1908, p. 12.

Chætopleura miranda Smith, Nat. Antarct. Exped., ii., 1907, p. 1, pl. ii., figs. 13-13G.

Here the third valve is always entirely red, the largest of the series reaches a length of 120mm. One small specimen, December 31st, 1913, from 157 fathoms, ooze, in the D'Urville Sea, in South Lat. 66° 32′ and East Long. 141° 39′. Three large individuals, January 31st, 1914, from 110 fathoms, hard ground, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Callochiton gaussi *Thiele.*

Callochiton (*Icoplax*) *gaussi* Thiele, Deutsch. Südpol. Exped., x., 1908, p. 15, pl. i., figs. 27-32.

The series before me have the fourth valve always stained orange red. The largest individual attains a length of 22mm.

One, December 14th, 1913, from 45-50 fathoms; and seven, December 22nd, 1913, from 350-400 fathoms, both in Commonwealth Bay, Adelie Land. One, December 31st, 1913, from 157 fathoms, ooze, in the D'Urville Sea, in South Lat. 66° 32′ and East Long. 141° 39′. One, January 27th, 1914, in 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′. One adhering to a valve of *Pecten colbecki*, January 29th, 1914, from 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13′.

Plaxiphora aurea *Spalowsky.*

Chiton aureus Spalowsky, Prodr. Syst. Test., 1795, p. 88, pl. xiii., fig. 6; *Id.*, Pilsbry, "Nautilus," xxv., 1911, p. 36; *Id.*, Iredale, Trans. N.Z. Inst., xlvii., (1914) 1915, p. 424.

Chiton carmichaelis Wood, Index Test., 1828, Suppl., pl. i., fig. 10.

Chiton setiger King, Zool. Journ., v., 1831, p. 358.

Plaxiphora setigera Melvill and Standen, Journ. of Conch., x., 1901, p. 46, and Trans. Roy. Soc. Edinb., xlviii., 1912, p. 342.

Plaxifora campbelli Filhol, Compt. Rend., xci., 1880, p. 1095, and Miss. de l'ile Campbell, iii., 1885, p. 540; *Id.*, Iredale, Proc. Malac. Soc., ix., 1910, p. 95.

Chætopleura savatieri Rochebrune, Miss. Scient. Cap Horn, vi., 1889, p. 135, pl. ix., fig. 3. *C. hahni*, *id. op. cit.*, p. 136, pl. ix., fig. 4. *C. frigida*, *id. op. cit.*, p. 137, pl. ix., fig. 5.

Plaxiphora superba Pilsbry, Man. Conch., (1), xiv., 1893, p. 319, pl. lxviii., figs. 55-61 ; *Id.*, Suter, Man. N.Z. Moll., 1913, pp. 21, 1079 ; *Id.*, Thiele, Zool. Chun., 1909, heft. lvi., p. 27, pl. iii., figs. 39-40.

Plaxiphora subatrata Suter, Proc. Malac. Soc., ii., 1897, p. 190, text figs. 7-11, and Subantarctic Islands, N.Z., i., 1909, Moll., p. 3.

Plaxiphora aucklandica Suter, Subantarctic Islands, N.Z., i., 1909, p. 2, pl. i., fig. 1.

The intricate nomenclature of this species has been recently set out by Mr. Tom Iredale, who shows that this giant " has the longest synonymy of any austral chiton and is yet the best marked species." Continuity of its distribution from the Strait of Magellan and Cape Horn in the east to the southern islands of New Zealand in the west has been broken by the interposition of a frozen Antarctica. On Macquarie Island this enormous chiton seems to be generally abundant. Specimens are noted as collected, May, 1912, on rocks in littoral zone at Garden Bay, and again from the under surface of stones at low water near the north end. Some individuals preserved by Mr. H. Hamilton reach a length of 120mm.

Class GASTEROPODA.

Schismope subantarctica *sp. nov.*

(Plate V., figs. 54, 55.)

Shell minute, very oblique, imperforate. Colour white. Whorls three, first two coiled in one plane, the last rapidly enlarging and obliquely descending. Sculpture : spire smooth, base ornamented with spaced spiral ridges decussated by finer and closer radial threads. On the upper part of the body whorl this sculpture is faintly repeated. The perforation is small elliptical, its major axis parallel to the spiral, distant rather more than a quarter of a whorl from the aperture, to which a fine seam connects it. The margins are upraised. Posterior to the perforation is neither fasciole nor groove, which constitutes one of the peculiar features of the shell. The aperture is ovate and oblique, its inner lip appressed to the imperforate axis. Maj. diam., 1·15 ; height, 0·75mm.

One specimen, from a worm tube, collected January 19th, 1912, at Aerial Cove, Macquarie Island, by Mr. H. Hamilton.

S. mouchezi Velain (Archiv. Zool. Exper., vi., 1878, p. 119, pl. iv., figs. 7, 8) is equally minute but is rounder, more strongly sculptured, and has a deep furrow behind the perforation.

Puncturella analoga *Martens.*

Puncturella analoga Martens, Deutsch. Tiefsee Exped., vii., 1903, p. 70, pl. v., fig. 8.

There is a single shell, 6·5mm. long, agreeing generally with the figure quoted, which was dredged alive adhering to a *Brachiopod* from 60 fathoms, off the south end of Macquarie Island.

I have not material to discuss its relations with *P. falklandica* A. Adams,* with the southern form of *P. noachina* Linne,† or with *P. spirigera* Thiele.‡

Margarella macquariensis *sp. nov.*

(Plate V., figs. 56, 57.)

Shell depressed-spherical, rather solid, imperforate when adult, polished. Colour ash purple. Whorls four and a half, rather rapidly increased, well rounded at periphery, slightly descending at the last, parted by impressed sutures. Under the lens the surface, smooth to the eye, is seen to be sculptured by dense, fine, hair radials. Aperture oblique, semilunate, outer lip simple thin. Base tumid; in the young, till three whorls old, the shell is narrowly perforate, the umbilicus over-arched by a lobe of the columella lip, which later becomes appressed to the base. In the adult the basal axis is overspread by a thick crescentic callus, slightly tinged with green and excavate medially. Height, 8; maj. diam., 9; min. diam., 7·5mm.

Twenty specimens were taken, January 19th, 1913, by Mr. H. Hamilton, at Aerial Cove, Macquarie Island. He notes that the species occurred sparingly under stones. Compared with *M. expansa* Sowerby, this is smaller, more depressed, more solid, and of a paler colour.

Margarella refulgens *Smith.*

Valvatella refulgens Smith, Nat. Antarct. Exped., ii., 1907, p. 11, pl. ii., fig. 7; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 4.

Margarella refulgens Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 188; *Id.*, Smith, "Terra Nova" Exped., Zool., ii., 1915, p. 64.

Several, January 20th, 1913, dredged in 15-20 fathoms, Commonwealth Bay, on a floor of rock and brown algæ; again numerous specimens, September 4th, 1912, in 25 fathoms; five, December 14th, 1913, in 45-50 fathoms; two, December 21st, 1913, in 55-60 fathoms; and four, December 22nd, 1913, from 350-400 fathoms, in Commonwealth Bay. One, January 27th, 1914, in 120 fathoms, on a floor of granite rock, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′.

* Dall.—Proc. U.S. Nat. Mus., xii., 1889, p. 356.

† Smith.—Proc. Malac. Soc., v., 1902, p. 165; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlviii., 1912, p. 344.

‡ Thiele.—Deutsch. Südpol. Exped., xiii., 1912, p. 186, pl. xi., figs. 4-10.

Submargarita crebrilirulata *Smith.*

Valvatella crebrilirulata Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 11, pl. ii., fig. 9 ; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 4.

Margarites crebrilirulata Smith, " Terra Nova " Exped., Zool., ii., 1915, p. 63.

The spiral threads of this species vary considerably in their development ; they may be normal on the early whorls and gradually disappear on the last, or the upper surface may be lirate and the base smooth. A large example is 10mm. in height.

From Commonwealth Bay : several dredged, January 20th, 1913, in 15-20 fathoms, on a floor of rock and brown algæ ; again numerous, September 3rd, 1912, in 25 fathoms ; nine, December 14th, 1913, in 45-50 fathoms ; and three from 55-60 fathoms. One specimen was taken in 3 fathoms in the Boat Harbour, Commonwealth Bay, by Dr. McLean, in 1913.

Submargarita smithiana *sp. nov.*

(Plate V., fig. 58.)

? Margarites sp. Smith, " Terra Nova " Exped., ii., Moll., 1915, p. 63.

Shell thin, turbinate, spire elevate, umbilicus narrow, deep, and spiral. Colour pale buff. Whorls about six, round and loosely coiled, parted by deep sutures. Sculpture : the surface is ornamented by raised spiral cords, which increase by intercalation and consequently vary in size, space, and number as growth proceeds. They extend from the suture to the aperture, are often crowded and irregular ; in one apparently adult individual they finally amount to about 30. But in a specimen of about five whorls there are only 15 cinguli, of which one on the shoulder, another at the periphery, and a third at the margin of the umbilicus are larger than the rest. A series of sharp elevated radial threads run obliquely backwards from the suture to the umbilicus ; these are evenly arranged about their own breadth apart and are as prominent on the summit of the cinguli as in the hollows between them. Aperture subcircular, entire, lightly attached to the preceding whorl, outer lip simple, columellar margin a little expanded. Height, 11 ; maj. diam., 12 ; min. diam., 9mm.

Six defective specimens were dredged, January 28th, 1914, in 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

From his description *S. smithiana* appears to be identical with an unnamed species taken by the " Terra Nova " Expedition, in 180-200 fathoms, in South Lat. 69° 43′ and East Long. 163° 24′. It is accordingly named as a tribute of respect to one who has done so much work on the Molluscan fauna of the Antarctic.

Minolia dulcis *Smith.*

Valvatella dulcis Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 10, pl. ii., fig. 8.

Margarites dulcis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 190, pl. xi., fig. 21; *Id.*, Smith, "Terra Nova" Exped., Zool., ii., 1915, p. 63.

One, October 4th, 1912, from 25 fathoms; three, December 21st, 1913, from 55-60 fathoms; and three more, December 22nd, 1913, from 350-400 fathoms, in Commonwealth Bay. Two dredged, December 31st, 1913, from 157 fathoms, in the D'Urville Sea, in South Lat. 66° 32′ and East Long. 141° 39′.

Minolia thielei *sp. nov.*

(Plate V., fig. 59.)

? Margarites sp. Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 191, pl. xi., fig. 22.

Shell trochoidal, thin, lustrous, narrowly umbilicate, bicarinate. Apex tilted, white, opaque, mamillate, punctate. Remainder of the shell translucent, pearly with a green and purple lustre. Whorls four, parted by a suture which lies in a deep gutter. Sculpture: the spirals, which increase by intercalation, finally amount in my larger specimen to 33, of which two on the periphery are larger than the rest, and 20 on the base are small and close-set. On the penultimate the spirals are six, and on the antipenultimate four. Only the interior of the umbilicus has no spirals. Everywhere very delicate radial threads traverse the flat interstices; but on two or three of the innermost spirals these enlarge and denticulate the crest of the rib. Aperture subcircular, the columella margin a little expanded, a slight glaze of callus over the preceding whorl and with the outer lip sharply dentate by the external sculpture. Height, 8; maj. diam., 9; min. diam., 7mm.

One specimen (type) dredged, January 31st, 1914, in 110 fathoms, hard ground, near the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′. Another smaller specimen taken December 28th, 1913, in 288 fathoms, off the Mertz Glacier Tongue, in South Lat. 66° 55′ and East Long. 145° 21′.

Save that our species is bicarinate it resembles the unnamed "Gauss" fragment figured by Dr. Thiele, after whom, in appreciation of his admirable work on Antarctic Mollusca, it is now called.

Thoristella aucklandica *Smith.*

Calliostoma aucklandicum Smith, "Southern Cross" Collections, 1902, p. 207, pl. xxiv., fig. 5.

Thoristella aucklandica Iredale, Trans. N.Z. Inst., xlvii., (1914) 1915, p. 436.

Twelve specimens, June 28th, 1912, from 1 fathom, Carnley Harbour, Auckland Islands. This species seems to be related generically to *Calliostoma retiarium* Hedley and May, from South Tasmania.

Photinula capillacea *Philippi.*

var. minor *Smith.*

Trochus capillaceus Philippi, Zeit fur Malak., iv., 1848, p. 102.

Cantharidus pruinus Gould var. *minor* Smith, Coll. "Southern Cross," 1902, p. 207.

One specimen, June 28th, 1912, from 1 fathom, Carnley Harbour, Auckland Islands.

Photinula coruscans *sp. nov.*

(Plate V., figs. 60, 61.)

Cantharidus pruninus var. *perobtusa* Suter, Proc. Malac. Soc., ii., 1897, p. 269; *Id.*, Man. N.Z. Mollusca, 1913, p. 125, pl. xxxix., fig. 6.

Shell globose-conic, thin, light and imperforate. Colour a leaden purple which, on the apex, changes to bright rose, basal callus white with a narrow outer border of wine purple. Whorls six, rapidly increasing, wound obliquely, last descending a little and broadened behind the aperture. Sculpture: to the eye the surface is smooth and glossy, but under the lens appears densely and finely spirally scored by grooves which extend uniformly across the whorl. On the third whorl are five grooves which subsequently decrease in size but multiply greatly in number, and on the last whorl are crossed by delicate growth lines. The centre of the base is occupied by a thick callus overflowing from the columella margin. Aperture oblique, subcircular, outer lip simple thin. Between the insertions the previous whorl is first eroded and then smeared with a nacreous film. Within the outer lip is a narrow space coloured like the exterior and followed by a broader pale and dull zone. Further within the throat is brilliantly nacreous with opaline reflections of rose, mauve, and emerald. It is finely fluted by spirals independent of the external sculpture. Height, 21; maj. diam., 23; min. diam., 19mm.

Ten specimens were obtained at the north end of Macquarie Island, but there is no note as to their precise situation. Their wide aperture and thin shell suggests that they may live clinging to the seaweed.

As this shell seemed to me not to conform to the representation of *Cantharidus pruinus* var. *perobtusus*, with which Mr. Suter had identified it, I asked Dr. Pilsbry to compare a Macquarie Island shell with the type of his *perobtusus*. He replied, November 23rd, 1915, that *perobtusus* was founded on a single specimen, the locality of which is still unknown; it has an axial pad larger than *coruscans*, and the last whorl is noticeably concave above. He considers that, if the shell I sent was adult, the two are specifically distinct, although he would rank *coruscans* as closer to *perobtusus* than that is to *pruinus*. He agrees that *Photinula* may include these.

On the upper surface the animal of *P. coruscans* is black, and on the under cream. Just above the tip of the tail the epipodium commences and continues without interruption to the ocular tentacles. The hinder part is a thick crest, tuberculate at the edge where three pairs of epipodial tentacles arise from sheaths. Two of these tentacles are beside and one in front of the operculum. Anterior to this latter, the epipodium changes to a thin free cervical lobe hanging loose over the foot and bound to the ocular tentacle for almost its full length. This cervical lobe has a simple unfringed margin on both left and right sides, and on each side it conceals a cervical papilla. Under the right ocular tentacle is another projection, apparently the cephalic organ. On the muzzle are two free lobes which do not meet in the centre but ascend on either side to form a sinus around the cephalic tentacle and junction with the ocular tentacle.

Radiacmea macquariensis *sp. nov.*

(Plate VI., figs. 62, 63.)

Shell small, rather solid, oblong-ovate, moderately elevated, apex in front of the centre. Colour: one specimen is purple pink with dark and light concentric zones; another is white with chocolate zones and pink apex, interior pale mauve. Sculpture: about 60 depressed radial riblets parted by narrow grooves which notch the margin. Both riblets and interstices are crossed by fine and dense concentric threads. External sculpture imprinted on the interior surface, muscle-scars definite. A narrow margin to the inner lip is not covered by a callus sheet extending over the rest of the interior. Length, 12; breadth, 9·5; height, 5mm.

Four specimens were collected on rocks at Macquarie Island by Mr. H. Hamilton.

Nearest to this seems to be *R. campbelli* Filhol, from Campbell Island, which is smaller, rounder, and less solid.

Lepeta coppingeri *Smith.*

Lepeta coppingeri Smith, Proc. Zool. Soc., 1881, p. 35, pl. iv., fig. 12; *Id.*, Pilsbry, Man. of Conch., xiii., 1891, p. 71, pl. xxxix., figs. 20, 21; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, pp. 185, 233, and 257; *Id.*, Smith, "Terra Nova" Exped. Zool., ii., 1915, p. 62.

Pilidium coppingeri Strebel, Zool. Jahrb. Syst., xxv., 1907, p. 110, pl. iii., fig. 38; *Id.*, Schwed. Südpol. Exped., vi., 1908, p. 83.

Lepeta antarctica Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 12, pl. ii., fig. 11; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 3.

? Patella emarginuloides Philippi, Malak. Blatt., xv., 1868, p. 224.

A series from Adelie Land ranges from small specimens like the type of *L. antarctica* to one 13mm. long, 6mm. high, and 9·5mm. broad. In the adult, the anterior slope is more gradual, the radial sculpture is comparatively weaker and the scales thereon disappear. Sometimes the interior is of a bright orange colour.

Dr. Thiele has united the southern *L. antarctica* to the *L. coppingeri* from Magellan Straits, a connection recently accepted by the author of these names.

From Commonwealth Bay the expedition brought numerous examples, September 3rd, 1912, from 25 fathoms; seven, December 14th, 1913, from 45-50 fathoms; and four more, December 21st, 1913, from 55-60 fathoms.

Lepeta depressa *sp. nov.*

(Plate VI., fig. 64.)

Shell thin and delicate, very depressed, elongate-ovate. Colour, uniform drab. Apex at one-third of the length. Sculpture: anterior end faintly rayed, sides and posterior end decorated with about 40 radiating raised lines which at the sides curve forwards and downwards. These radials are widely spaced by flat interstices. As growth proceeds fresh radials are intercalated. Fine concentric hair lines override both radials and interstices. Height, 3·5mm.; length of spm., 13mm.; probable length when entire, 16mm.; breadth actually, 9mm., probably 10mm. when complete.

This very distinct species is represented by a single broken shell, dredged January 28th, 1914, from 240 fathoms, bottom ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Nacella delesserti *Philippi.*

(Plate VI., figs. 65, 66, 67, 68, 69.)

Patella delesserti Philippi, Abbild. Besch., iii., 1849, p. 9, pl. i., fig. 5.

Patella redimiculum Reeve, Conch. Icon., viii., 1854, pl. xx., fig. 50.

? Patella strigilis Hombron and Jacquinot, Ann. Sci. Nat., (2), xvi., 1841, p. 190.

The identification of southern limpets is not an easy task, as might be inferred from their intricate synonymy. It is probable that the species fixed on the kelp are always distinct from those living on the rock. Young shells are not readily matched with old without an extensive series.

A limpet found by Mr. H. Hamilton to be generally distributed on rocks in the littoral zone of Macquarie Island thus changes in its development. The young shell is proportionately narrower than the adult and has the apex more excentric. Philippi's drawing of a limpet from Marion Island, 22mm. long, is intermediate in these respects between a young Macquarie Island shell, 12mm. long (fig. 67), and a more mature Macquarie Island individual, 53mm. long (fig. 65). The Marion Island species has been buried in the synonymy of different other species by subsequent writers.

*Nacella illuminata** has been reported from Macquarie Island but does not occur in this collection. Our shells differ from Gould's figure of that Auckland Island species by being narrower with finer and more numerous ribs, lower and less excentric apex, and different colour pattern.

Patella depsta Reeve, from St. Paul, as figured by Velain,† and which also appears to be a *Nacella*, differs by still finer radial sculpture.

In alcohol, the animal (pl. vi., fig. 68) is buff. On the mantle margin is an uninterrupted linear series of simple papillæ, every fourth (but sometimes every second) one of which is black, larger, and much contracted. These are more developed than in other genera of limpets. For comparison, a drawing of the animal (fig. 69) of *Cellana variegata* Blainville, from life, is here submitted. Within the papillæ are set the branchial lamellæ, continuous but diminished in front. For comparison, a sketch is here added of *Patella squamifera* Reeve (text fig. 2), a Sydney specimen, from life, to show the continuous row as expressed in another genus which has no pedal fringe.

Fig. 2.

The foot of the *Nacella* is large and muscular with a double margin in front. Half way up the stem is a broad undulating fringe above which the skin is more smooth and tender, thus suggesting that the flounce round the foot meets the mantle edge to form a branchial chamber. If the pedal fringe of *Nacella* be the homologue of the epipodial skirt of the Trochidæ, then this genus may be nearer than other limpets to the primitive Diotocardian stock. Davis and Fleure remarked that, as a rudimentary and transient feature, this fringe occurs in the young of *Patella vulgata*.‡

If I have correctly identified this species it has only been described from immature specimens. The adult may be characterised as follows :—Shell large, solid and elevated ; of variable shape, the apex being usually one-fourth of the total length from the anterior end, but varying from one-third to one-sixth, height usually less than one-half the breadth. Colour, externally chestnut variegated with tawny olive ; interior nacreous,

* Suter.—Subantarct. Islands of N. Zeal., i., 1909, p. 6.

† Velain.—Arch. Zool. Expér., vi., 1878, pl. iv., figs. 13-18. ‡ Davis and Fleure.—L.M.B.C. Memoirs, x., 1903, p. 15

bluish silver mottled with horn brown streaks, the latter being more opaque in transmitted light than the background, muscle print a porcellanous callus, ashen and sharply defined. Sculpture: from 30 to 40 low crowded radial ribs increasing by splitting; these faintly denticulate the margin. Well preserved specimens show a concentric ornament of fine dense hair lines, among which are irregularly interposed more prominent cords which sometimes form vaulted scales on the ribs. Aperture ovate, usually broader behind the apex.

A shell here figured is 52mm. long, 40mm. broad, 21mm. high. Another is 62 × 49 × 21mm., and another 61 × 49 × 31. The young shell figured (fig. 67) is 12mm. long, 8mm. broad, 3mm. high.

Nacella kerguelenensis *Smith.*

Patella ferruginea Reeve (not Gmelin), Conch. Icon., viii., 1854, pl. xvii., fig. 40.

Patinella magellanica Dall, Bull. U.S. Nat. Mus., iii., 1876, p. 43.

Patella kerguelenensis Smith, Phil. Trans., vol. 168, 1879, p. 177, pl. ix., fig. 13; *Id.*, Studer, Archiv. Naturg., xlv., 1879, p. 128; *Id.*, Watson, Chall. Rep. Zool., xv., 1886, p. 27.

Nacella kerguelenensis Pilsbry, Man. Conch., xiii., 1891, p. 121, pl. xliii., figs. 7, 8; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 234; *Id.*, Lamy, Bull. Mus. Hist. Nat., xxi., 1915, p. 73.

Patinella kerguelenensis Strebel, Zool. Jahrb. Syst., xxv., 1907, p. 153, pl. iv., fig. 58.

Until Dr. H. Strebel found this in the Magellan province it had not been noted beyond Heard and Kerguelen Islands. Possibly masses of floating kelp, so common in these seas, afford it a means of dispersal. Mr. H. Hamilton collected, on Macquarie Island, four beach-worn shells, one of which measured, length, 83; breadth, 68; and height, 48mm. The best preserved of these was a dark copper-brown inside and the most aged were contracted anteriorly in a snout, but broadly rounded behind. The apex was well in front of the centre. All agreed generally with specimens from Kerguelen Island determined by Mr. E. A. Smith.

Brookula *sp.*

(Plate VI., fig. 70.)

Shell minute, turbinate, widely umbilicate. Whorls two and a half, rounded, scarcely in contact, the apex with a half turned over tip. Colour white. Aperture entire, circular, lip simple. Maj. diam., 0·8; min. diam., 0·6; height, 0·6mm.

Two eroded and probably immature specimens were collected, January 19th, 1912, by Mr. H. Hamilton, on worm tubes, at Aerial Cove, Macquarie Island. As the original surface was mostly etched away it seems best not to give a specific name to a form in

which differential characters are so obscure. *Brookula*, introduced by Iredale in 1912 (Proc. Malac. Soc., x., p. 219), will cover such Antarctic forms as *Cyclostrema decussatum* Pelseneer (Expéd. Antarct. Belge. Moll., 1903, p. 19., pl. v., fig. 48).

Lævilitorina antarctica *Smith.*

(Plate VI., figs. 71, 72.)

Paludestrina antarctica Smith, Coll. "Southern Cross," Moll., 1902, p. 204, pl. xxiv., fig. 16.

Lævilitorina antarctica Lamy, 2nd Expéd. Antarct. Franç., 1911, Moll., p. 9.

A *Lævilitorina*, which seems common in shallow water in Adelie Land, answers in its younger stages to that figured by Mr. E. A. Smith, from Cape Adare. But when full grown the species before me expands at the last whorl, the aperture is freed from the previous whorl, and a small umbilicus is formed. This adult is, however, no longer than the Cape Adare type. I have concluded that the shells now figured represent the immature and adult of a small form of *L. antarctica*.

Several specimens dredged May 21st, 1912, and June 1st, 1912, in 3 fathoms, among rhizoids of brown algæ, Boat Harbour, Commonwealth Bay; and again, October 4th, 1912, from 25 fathoms, Commonwealth Bay. A specimen was also taken from the stomach of a fish, *Harpagifer bispinus*.

Lævilitorina caliginosa *Gould.*

Littorina caliginosa Gould, Proc. Bost. Soc. Nat. Hist., iii., 1849, p. 83; *Id.*, Gould, U.S. Expl. Exped., xii., Moll., 1852, p. 198, pl. xiv., fig. 240.

Hydrobia caliginosa Smith, Phil. Trans. Roy. Soc., vol. 168, 1879, p. 173, pl. ix., fig. 8; *Id.*, Studer, Archiv. Naturgesch, xlv., 1879, p. 129; *Id.*, Watson, Chall. Rep. Zool., xv., 1886, p. 613.

Lævilitorina caliginosa Martens and Pfeffer, Jahrb. Hamburg. Wiss. Anst., iii., 1886, p. 81, pl. i., fig. 8.

Paludestrina caliginosa Smith, Proc. Malac. Soc., iii., 1898, p. 22.

Lævilitorina caliginosa Pelseneer, Moll. "Belgica" Exped., 1903, p. 8; *Id.*, Lamy, Bull. Mus. Hist. Nat., xii., 1906, p. 112, and xxi., 1915, p. 71; *Id.*, Lamy, 1st Expéd. Antarct. Franç., Moll., 1906, p. 4; *Id.*, Strebel, Zool. Jahrb. Syst., xxv., 1907, p. 156; *Id.*, Strebel, Schwed. Südpol. Exped., vi., 1908, p. 51; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 235, pl. xiv., fig. 25; *Id.*, Suter, Manual N.Z. Moll., 1913, p. 190, pl. xxxv., fig. 11.

About 60 specimens of this were gathered, March 23rd, 1912, by Mr. H. Hamilton, at Hassellborough Bay, Macquarie Island. In his notes he remarked on it as "a small brown variety, attaches itself to rocks or algæ, exceedingly common on the coast."

Lævilitorina hamiltoni *Smith.*

(Plate VI., fig. 73.)

Paludestrina hamiltoni Smith, Proc. Malac. Soc., iii., 1898, p. 22, figs. 1, 2.

Lævilitorina hamiltoni Suter, Man. N.Z. Moll., 1913, p. 190, pl. xxxv., fig. 12.

A hundred specimens were gathered, October 28th, 1913, by Mr. H. Hamilton, attached to algæ at low water on the west coast; and again, March 23rd, 1912, at Hassellborough Bay, Macquarie Island, where it clung firmly to several pieces of algæ between tide marks.

Eatoniella kerguelenensis *Smith.*

Eatonia kerguelenensis Smith, Ann. Mag. Nat. Hist., (4), xvi., 1875, p. 70.

Eatoniella kerguelenensis (and *? E. inflata*) Dall, Bull, U.S. Nat. Mus., iii., 1876, p. 42; *Id.*, Smith, Phil. Trans., clxviii., 1879, p. 174, pl. ix., fig. 10; *Id.*, Martens and Pfeffer, Jahrb. Hamburg. Wiss. Anst., iii., 1886, p. 94, pl. ii., fig. 5; *Id.*, Lamy, 1st Expéd. Antarct. Franç., 1906, Moll., p. 7; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 134, and xlviii., 1912, p. 351; *Id.*, "Scotia" Zool., vi., 1912, p. 125; *Id.*, Strebel, Schwed. Südpol. Exped., vi., 1908, p. 58, pl. iv., fig. 58; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 235, pl. xiv., fig. 26, pl. xvi., fig. 1.

Forty specimens, October 4th, 1912, from 25 fathoms; and nine from 45-50 fathoms, Commonwealth Bay.

Eatoniopsis ainsworthi *sp. nov.*

(Plate VII., fig. 74.)

Shell small, oblong-ovate, imperforate. Colour, olive buff. Whorls five, rounded, rather rapidly increasing, parted by impressed sutures. Sculpture: smooth save for slight and irregular growth lines. Aperture subcircular, lip a little expanded and everted. Height, 1·5; breadth, 0·7mm.

Twelve specimens were taken from a worm tube collected, January 19th, 1912, by Mr. H. Hamilton, at Aerial Cove, Macquarie Island. Named in honor of Mr. G. F. Ainsworth, who was in charge of Macquarie Island for two years.

Tatea melvilli *sp. nov.*

(Plate VII., fig. 75.)

Shell elongate-conical, smooth, rimate. Colour, ochraceous buff. Whorls five, rounded, parted by impressed sutures, latterly rapidly increasing so that the last is longer than the rest together. Sculpture: on the last whorl are a few lightly impressed

indefinite furrows. Aperture entire, ovate, angled above, rounded below, outer lip simple, slightly everted, inner lip separated by a narrow crack from the preceding whorl. Length, 2·7 ; breadth, 1mm.

This species is called after Mr. James Cosmo Melvill, the senior author of a valuable report on the Antarctic Mollusca of the "Scotia" Expedition, so often quoted in these pages.

A dozen specimens were obtained, March 17th, 1912, at Garden Bay, Macquarie Island, by Mr. H. Hamilton, who notes that it was "common under stones, above ordinary high-water level, but close to the sea".

Ovirissoa *gen. nov.*

The southern shells usually included under *Rissoa* were recently discussed by Mr. T. Iredale,* who shows that this generic name is not applicable, and offers, instead, several new divisions and names. The polar species were not included in his scheme. So *Ovirissoa*, typified by *Rissoa adarensis* Smith, is proposed for a group from Antarctic waters of milk-white, glossy, imperforate, rather elongate small shells with about five convex whorls and an entire aperture.

Other species of *Ovirissoa* are *O. cazini* Velain, from St. Paul's Island ; *O. columna* Pelseneer, from Charcot Land ; and *O. georgiana* Pfeffer, from South Georgia.

Ovirissoa adarensis *Smith.*

Rissoa adarensis Smith, Coll. "Southern Cross," 1902, p. 205, pl. xxiv., fig. 17 ; *Id.*, Smith, Nat. Antarct. Exped., ii., 1907, p. 8, pl. ii., fig. 2 ; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 132 ; *Id.*, "Scotia" Zool., v. 1907, p. 102 ; *Id.*, Lamy, 2nd Expéd. Antarct. Franç., ii., 1911, Moll., p. 10 ; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 5 ; *Id.*, Smith, "Terra Nova" Exped., Zool., ii., 1915, p. 65.

Six specimens were dredged, September 3rd, 1912, from 25 fathoms, in Commonwealth Bay.

Subonoba bickertoni *sp. nov.*

(Plate VII., fig. 76.)

Shell elongate-ovate, imperforate. Colour, uniform light brown. Whorls five, wound rather obliquely with impressed sutures. Sculpture : very delicate wide-spaced spiral threads. Aperture oblique, elliptical, lip slightly everted, in contact with the body whorl for a short space only. Length, 2·7 ; breadth, 1·3mm.

One specimen (type) dredged, December 14th, 1913, in 45-50 fathoms, in Commonwealth Bay. Fifty, September 3rd, 1912, from 25 fathoms, Commonwealth Bay.

* Iredale.—Trans. N.Z. Inst., xlvii., 1915, p. 447.

By colour and sculpture it is distinguished from *R. adarensis* which it resembles in form. From the figure *R. fraudulenta* seems a stouter shell. It is named in honour of Mr. F. H. Bickerton, F.R.G.S., who spent two years at the Main Base, Commonwealth Bay.

Subonoba deserta *Smith.*

Rissoa deserta Smith, Nat. Antarct. Exped., ii., 1907, p. 9, pl. ii., fig. 1 ; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlviii., 1912, p. 349 ; *Id.*, Scotia Zool., vi., 1912, p. 123 ; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 194, pl. xi., fig. 33.

A dozen examples of this featureless shell occurred, September 3rd, 1912, and six, December 14th, 1913, in 45-50 fathoms, Commonwealth Bay.

Subonoba gelida *Smith.*

Rissoa gelida Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 9, pl. ii., fig. 5 ; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 195, pl. xi., figs. 37, 38 ; *Id.*, Smith, " Terra Nova " Exped., ii., Moll., 1915, p. 65.

Fifty specimens dredged, September 3rd, 1912, from 25 fathoms; and nine, December 14th, 1913, from 45-50 fathoms, Commonwealth Bay.

Subonoba glacialis *Smith.*

Rissoa glacialis Smith, Nat Antarct. Exped., ii., 1907, Moll., p. 9, pl. ii., fig. 4 ; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 5 ; *Id.*, Smith, " Terra Nova " Exped., ii., Moll., 1915, p. 65.

Two specimens dredged, September 3rd, 1912, from 25 fathoms ; and three, December 14th, 1913, from 45-50 fathoms, in Commonwealth Bay.

Subonoba ovata *Thiele.*

Rissoa ovata Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 194, pl. xi., fig. 36.

One, October 4th, 1912, from 25 fathoms, in Commonwealth Bay.

Subonoba wilkesiana *sp. nov.*

(Plate VII., fig. 77.)

Shell broad-ovate, subperforate. Colour buff. Whorls three and a half, inflated, constricted at the suture. Sculpture : close, fine, spiral threads evenly distributed and irregularly decussated by slight growth lines. Aperture subquadrate, entire columella margin a little reflected. Length, 2·5 ; breadth, 1·8mm.

One specimen, December 14th, 1913, from 45-50 fathoms, in Commonwealth Bay.

This appears to be a broader shell than the related *Rissoa subantarctica* Thiele, from Kerguelen. It is named in honour of Capt. Charles Wilkes, who made a daring reconnaissance in these waters in 1840.

Cerithiopsilla antarctica *Smith.*

Lovenella antarctica Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 10, pl. ii., fig. 6.

Cerithiopsilla antarctica Thiele, Deutsch. Südpol. Exped., xiii., 1912, pp. 202, 261; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 5; *Id.*, Smith, "Terra Nova" Exped., ii., Moll., 1915, p. 70.

A single worn specimen, September 3rd, 1912, from 25 fathoms, Commonwealth Bay.

Eumeta strebeli *Thiele.*

(Plate VII., fig. 78.)

Eumeta strebeli Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 203, pl. xii., fig. 25.

One dredged, December 14th, 1913, in 45-50 fathoms, in Commonwealth Bay.

Our example is more mature than the single specimen taken by the "Gauss" Expedition, having 11 whorls in a length of 10mm. The radial sculpture gradually vanishes on the latter whorls which have three sharp peripheral cords and a rather flat base. Their glossy surface is engraved with dense microscopic spiral striæ.

Melanella exulata *Smith.*

Eulima exulata Smith, "Terra Nova" Exped., ii., Moll., 1915, p. 64, pl. i., fig. 2.

A single immature example having eight whorls in a length of 66mm., dredged December 14th, 1913, in 45-50 fathoms; and a still smaller one, December 22nd, 1913, from 350-400 fathoms, both in Commonwealth Bay.

Melanella laseroni *sp. nov.*

(Plate VII., fig. 79.)

Shell small, subcylindrical, slightly curved axially, smooth, glossy, and colourless. Apex blunt. Whorls eight, the base of the preceding whorl seen through the transparent shell traces a marginal band above the suture. Aperture pyriform, very oblique, outer lip thin, curving forward in front of the insertion, rounded below, columella straight. Length, 4·75; breadth, 1·4mm.

Four, including the type, October 4th, 1912, from 25 fathoms, Commonwealth Bay. The Australian *M. commensalis* Tate, is somewhat like this species, but is broader on the last whorl.

Named in honour of Mr. C. F. Laseron, who did excellent scientific work for the expedition.

Stilifer polaris *sp. nov.*

(Plate VII., fig. 80.)

Shell conic-acuminate, thin, translucent, spire gradate, tapering to an attenuate mucronate apex. Whorls nine, mostly flattened at the suture and rounded at the periphery, last subglobose. Colour milk-white. Surface very glossy, narrow and faint spiral grooves are crossed by fine radiating hair lines. Aperture reniform, columella perpendicular, thickened and reflected, outer lip forwardly sinuate, thin-edged, anterior margin round and slightly everted, no callus on inner lip. Length, 10 ; breadth, 6mm.

This form is related to *S. petterdi* Tate and May,* from which the slender spire readily distinguishes it. There is no information as to its occurrence, but it is probably parasitic on some echinoid.

A single specimen with the animal complete, January 29th, 1914, from 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13′.

Trichotropis antarctica *Thiele.*

Trichotropis antarctica Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 197, pl. xii., fig. 6' pl. xv., fig. 21 ; *Id.*, Smith, " Terra Nova " Exped., ii., Moll., 1915, p. 67, pl. i., fig. 6.

Four, December 28th, 1913, from 288 fathoms, off the Mertz Glacier, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Trichoconcha mirabilis *Smith.*

Trichoconcha mirabilis Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 6, pl. i., figs. 7, 7B.

Torellia mirabilis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 197 ; *Id.*, Smith, " Terra Nova " Exped., ii., Moll., 1915, p. 68.

When dried the shell of this species crumpled and collapsed like that of some New Zealand *Paryphanta*. The extremes of distribution previously recorded are connected by the Mawson Expedition thus—

One, December 31st, 1913, from 157 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 32′ and East Long. 141° 39′. Eight, December 22nd,

* Tate and May.—Trans. Roy. Soc. S.A., xxiv., 1900, p. 97.

1913, from 350-400 fathoms, ooze, in Commonwealth Bay, Adelie Land, in South Lat. 66° 50′ and East Long. 142° 6′. Four, January 21st, 1914, from 60 fathoms, bottom stones and red algæ, off Drygalski Island, in South Lat. 65° 42′ and East Long. 92° 10′.

Trochaclis antarctica *Thiele.*

Trochaclis antarctica Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 192, pl. xi., fig. 29.

Two specimens, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Friginatica *gen. nov.*

Examination of naticoid systematics induced Dr. W. H. Dall * to adopt Gray's division by shelly and horny opercula. In the first case he selected *Nerita vitellus* Linne (which Hanley identified with *N. rufa* Born), as type of *Natica* of Scopoli, thus restricting that genus to shells with a concentrically furrowed operculum. Those which have a single marginal sulcus on the operculum were referred to *Cochlis* Bolten, with *N. vittata* as type; finally a group *Cryptonatica*, type *N. clausa*, was formed for species with a smooth operculum.

Naticoids wearing a horny operculum were then grouped into *Polinices* with *Nerita mammilla* Linne as type, *Euspira* with *Natica labellata* as type and *Cepatia* with *Natica cepacea* as type.

The Linnean *Nerita mammilla* is a compound, perhaps indistinguishable, species, given different values by various authors, but which Hanley and Watson recognise as *Natica pyriformis* Recluz = *Mammillaria tumida* Swainson. It appears from his illustration that Montfort regarded *N. mammilla* as a species like the West American *N. uber* Valenciennes. So that the oriental group usually considered as *Polinices* might, strictly in subdivision, be termed *Mammillaria*.

There is an Antarctic naticoid group which cannot be received by any of the above, or by other known extralimital groups such as *Cernina* or *Mammilla*, not discussed by Dr. Dall. So far this amounts to about a dozen rather featureless species, all small, mostly uniform olive buff in colour, four whorls, a slightly raised spire, a caducous epidermis, comparatively thin, unsculptured, except for incremental striæ, without umbilical funicle or a callus pad at the insertion of the right lip. Operculum corneous paucispiral.

As type of *Friginatica*, I nominate *Natica beddomei* Johnston, well figured in the *Gasteropoda* of the "Challenger" under the later name of *Natica effosa* Watson, and, perhaps, identical with a Tertiary fossil *Natica polita* Ten. Woods.

* Dall.—U.S. Geol. Survey Profess. Papers, 59, 1909, p. 85.

Friginatica pisum *sp. nov.*

(Plate VII., fig. 81.)

Shell imperforate, globose, small, thin diaphanous. Colour, pale olive buff; there are faint spiral lines apparently in the substance rather than on the surface. Spire elevated. Whorls apparently four, but the apex is eroded, rounded, parted by deeply impressed sutures. Aperture narrowly semilunate, outer lip simple thin, margins united by a thin callus, columella perpendicular, thickened and reflected, spreading a small lobe over the axis. Height, 3·5; diameter, 3·5mm.

One specimen, containing the animal, from Lusitania Bay, Macquarie Island. With this was the young of a larger *Friginatica* like *F. grisea* but imperforate.

Friginatica grisea *von Martens.*

Natica grisea von Martens, Sitz. Gesell. Naturf. Freunde Berlin, 1878, p. 24; *Id.*, Watson, "Chall." Rep. Zool., xv., 1886, p. 432, pl. xxviii., fig. 5; *Id.*, von Martens, Deutsch. Tiefsee Exped., vii., 1903, p. 64, pl. iv., fig. 2; *Id.*, Strebel, Zool. Jahrb. Syst., xxiv., 1906, p. 143, xxv., 1907, p. 176; *Id.*, Strebel, Schwed. Südpol. Exped., vi., 1908, p. 61, pl. v., fig. 66; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 7; *Id.*, Smith, "Terra Nova" Exped., ii., Moll., 1915, p. 69.

Natica delicatula Smith, Collect. "Southern Cross," 1902, p. 206, pl. xxiv., fig. 6; *Id.*, Nat. Antarct. Exped., ii., 1907, Moll., p. 5; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 199, pl. xii., fig. 16.

This species apparently becomes narrower in proportion to length as growth proceeds, for specimens here examined (9mm. long) are intermediate, both in size and proportions, between individuals figured by Watson and by Smith. In accordance with a suggestion by the latter author they are now referred to *N. grisea*.

Four were taken, September 3rd, 1912, in 25 fathoms, Commonwealth Bay; and three, January 28th, 1914, in 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′.

Pellilitorina rossiana *Smith.*

Amauropsis (?) *rossiana* Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 5, pl. i., fig. 6; *Id.*, Hedley, Rec. Austr. Mus., viii., 1912, p. 139; *Id.*, Smith, "Terra Nova" Exped., ii., Moll., 1915, p. 69.

This species was originally and doubtfully assigned to *Amauropsis*. I have already suggested that the genus *Pellilitorina* might appropriately contain it.

Two half-grown empty shells were dredged, December 28th, 1913, in 288 fathoms, bottom ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Lamellariopsis aurora *sp. nov.*

(Plate VII., fig. 82.)

Animal very soft, apparently depressed-cordate, back covered with large irregularly spaced tubercles. Mantle margin wide, extending far beyond the foot or body. Foot comparatively small, broad in front and pointed behind. Tentacles rather long and far apart, eyes at the external bases. Verge long and sickle-shaped. Length, about 70mm.

This species is described from torn and distorted material, but it evidently differs from the type of the genus *Lamellariopsis turqueti* Vayssiere,* by the absence of the grained cords which in that species reticulate the surface.

Three specimens, January 31st, 1914, from 110 fathoms, hard ground, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

If *Lamellaria ampla* Strebel † is figured the natural size then the new form much exceeds it.

Marseniopsis mollis *Smith.*

Lamellaria mollis Smith, " Southern Cross " Coll., 1902, p. 205, pl. xxiv., figs. 19, 21.

Marseniopsis mollis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 200 ; *Id.*, Smith, " Terra Nova " Exped., ii., Moll., 1905, p. 66.

From Commonwealth Bay : three, September 4th, 1912, from 25 fathoms ; another December 14th, 1913, from 45-50 fathoms ; another, December 21st, 1913, from 55-60 fathoms ; and another, December 22nd, 1913, from 350-400 fathoms. One, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier, in South Lat. 66° 55′ and East Long. 145° 21′. One, January 21st, 1914, from 60 fathoms, rocky ground, off Drygalski Island. Two, January 27th, 1914, from 120 fathoms, rocky ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′. One, January 31st, 1914, from 110 fathoms, hard ground, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Harpovoluta vanhoffeni *Thiele.*

Harpovoluta vanhoffeni Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 213, pl. xiv., fig. 1.

One of the Mawson collection is 75mm. long, so the species attains now a larger size as well as a wider range. Where the animal is present, a large commensal actinian is usually seated on the back of the shell.

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* Vayssiére.—1st Expéd. Antarct. Franç., 1906, p. 40, pl. iv., figs. 42-3.

† Strebel.—Zool. Jahrb., xxiv., 1907, p. 145, pl. xi., figs. 70-1.

One, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′. Another, January 2nd, 1914, from 230 fathoms, ooze, off Wilkes Land, in South Lat. 65° 48′ and East Long. 137° 32′. Two, with an anemone to each, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′ ; and another, January 31st, 1914, from 110 fathoms, stony bottom, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Marginella hyalina *Thiele.*

(Plate VII., fig. 83.)

Marginella hyalina Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 213, pl. xiii., fig. 26.

A single specimen dredged, December 31st, 1913, in 157 fathoms, D'Urville Sea, in South Lat. 66° 32′ and East Long. 141° 39′. It is 7·5mm. long, nearly twice the size of the type, it has also an additional whorl. It is, therefore, longer in proportion to breadth, the suture is margined, and the aperture ascends at the insertion of the lip.

Admete delicatula *Smith.*

Admete delicatula Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 4, pl. i., figs. 5, 5a ; *Id.*, " Terra Nova " Exped., ii., Moll., 1915, p. 74.

A single specimen, December 31st, 1913, from 157 fathoms, ooze, in the D'Urville Sea, in South Lat. 66° 32′ and East Long. 141° 39′.

Oenopota davisi *sp. nov.*

(Plate VIII., fig. 84.)

Shell ovate, rather thin, spire gradate. Colour buff. Whorls four, of which one and a half are nuclear. Sinus deep, subsutural, the fasciole forming a broad flat shelf. Sculpture : low, narrow, close-set, radial lamellæ, concave on the fasciole and forwardly directed on the body whorl, reticulated by fine close spiral incised lines which extend from the angle of the shoulder to the end of the snout. Aperture narrow oblong, outer lip thin and simple, canal short and broad, inner lip smoothed with a layer of callus. Length, 7 ; breadth, 4mm.

This appears to be related to *Bela plicatula* Thiele,* but is broader and is more densely spirally striate. It is named in honour of Capt. J. K. Davis, and in remembrance of the excellent oceanographic work which he achieved on the "Aurora."

Iredale has shown † that in its original sense *Bela* was synonymous with *Mangilia.* For the group generally but wrongly called *Bela* he recommended Morch's name of *Oenopota.*

* Thiele.—Deutsch. Südpol. Exped. xiii., 1912, p. 215, pl. xiv., fig. 4. † Iredale.—Proc. Malac. Soc., xi., 1915, p. 299.

A single specimen, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 52′ and East Long. 145° 30′.

Pontiothauma ergata *sp. nov.*

(Plate VIII., figs. 85, 86, 87.)

Shell large, thin and narrowly fusiform. Colour, uniform buff. Whorls of unknown number, contracted at the suture and flattened on the shoulder. Protoconch rather large, of two whorls, the first oblique, turbinate, the second vertical and radially striate. Sculpture : close spiral cords which increase from eight on the third whorl to 33 on the sixth. These are overrun in the line of growth by fine dense hair lines which describe a broad and rather deep sinus. Canal apparently short and open. Size unknown, the fragments suggest a length of from 80 to 100mm.

This novelty is represented by two broken specimens. The first complete from the apex to the fifth whorl in a length of 30mm., and thence broken ; it was taken, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′, and may serve as the type. The other is a fragment from the middle of a shell, consisting of a whorl and a half, and perhaps representing a ninth or tenth whorl ; it was dredged December 28th, 1913, from 288-300 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Sipho gaini Lamy,* taken in 230 fathoms, off the South Shetlands, is very like this, and, perhaps, is identical. It seems, however, to differ by being broader in proportion to the length, by having a sharper apex, and especially by having the columella margin recurved.

Fusitriton aurora *sp. nov.*

(Plate VIII., figs. 88, 89, 90.)

Shell thin, subtranslucent, ovate-lanceolate, with mucronate apex, rounded whorls, evanescent varices, and no radial sculpture. Colour : shell white under a thin buff epidermis save for an ochreous yellow band on the columella callus and within the lip. Whorls tumid, rather rapidly increasing, wound obliquely, four and a turret protoconch ; the latter of four smooth whorls, the third and fourth of which are almost the same diameter. Suture running in a groove. Sculpture : on the last whorl about 45, on the penultimate about 16 narrow, evenly spaced, raised, spiral cords, frequently with finer interstitial threads. Radial sculpture confined to faint growth lines, varices evanescent, represented by a notch at the suture and a double impressed line. Aperture pyriform, oblique, slightly sinuate at the shoulder of the whorl, outer lip thin, scarcely everted ; inner lip marked by a substantial band of callus. Canal short, broad, open and slightly twisted. Operculum (fig. 90) with apical nucleus. Length, 83 ; breadth, 35mm.

* Lamy.—2nd Exped. Antarct. Franc., Moll., 1911, p. 7, pl. i., figs. 7-8.

A single specimen was dredged alive, February 24th, 1914, from 1,800 fathoms, ooze bottom, off the coast of South Australia, in South Lat. 35° 55½′ and East Long. 134° 18′.

Prosipho aurora *sp. nov.*

(Plate VIII., fig. 91.)

Shell conical, somewhat turreted. Whorls six, the first two forming a smooth turbinate protoconch, the others rounded with a sloping shoulder. Epidermis thin, persistent, buff, underlying shell white. Sculpture : on the body whorls are nine spirals, of which the median four are prominent, penultimate with five spirals, three being median and prominent and one following the suture of the lower whorl. Aperture pyriform, outer lip simple, canal short, inner lip excavate. Length, 7 ; breadth, 4mm.

Five years ago I prepared a figure and description, which still remains in editorial hands awaiting publication, of a shell from the so-called raised beach at Cape Royds. This species, with which I associated the name of the discoverer, Mr. E. R. Priestly, is related to the present form. *P. aurora* is, however, larger, comparatively broader, and has a shorter snout.

Eleven specimens were taken, July 4th, 1912, from 25 fathoms, Commonwealth Bay, Adelie Land.

Prosipho hunteri *sp. nov.*

(Plate VIII., fig. 92.)

Shell conical. Whorls five, of which the first two are smooth elongate-turbinate protoconch. Epidermis thin, buff colour. Sculpture : on the last whorl four spirals, of which the posterior is undulating and most developed, while the anterior ones are progressively fainter. On the upper whorls are two spirals, the posterior being most prominent and nodulous. The interstices between the cinguli are finely radiately striate. Aperture pyriform, outer lip simple, columella excavate, canal short and open. Length, 6 ; breadth, 3mm.

Named in honour of Mr. J. G. Hunter, Biologist at the Main Base.

Four specimens taken, July 4th, 1912, from 25 fathoms ; and five, December 14th, 1913, from 45-50 fathoms, Commonwealth Bay, Adelie Land.

Prosipho madigani *sp. nov.*

(Plate VIII., fig. 93.)

Shell conic-fusiform, somewhat turreted, flattened from the suture to the shoulder, rounded at the periphery and hollow at the base. Colour buff. Whorls six, the two first forming a smooth mucronate protoconch. Sculpture : on the last whorl are 12

spirals, of which five central ones are prominent and widely spaced ; on the snout are three low and faint ones. The penultimate has five such spirals, one bordering the suture. Aperture pyriform, outer lip thin and simple, canal short, open, columella excavate at the inner lip. Length, 13·5 ; breadth, 4·3mm.

This species is named in honour of Mr. C. T. Madigan, who led an important exploring expedition from the Western Base.

Four specimens taken, July 4th, 1912, from 25 fathoms ; and six, December 14th, 1913, from 45-50 fathoms, Commonwealth Bay, Adelie Land.

Prosipho mundus *Smith.*

var. *macleani* var. nov.

(Plate VIII., fig. 94.)

Prosipho mundus Smith, " Terra Nova " Exped., Zool., ii., Moll., 1915, p. 70, pl. i., fig. 10.

Before Mr. Smith's account of the " Terra Nova " mollusca reached me, I had prepared the following description as of a new species. My shell answers generally to *P. mundus*, but has the radial sculpture much fainter. It seems, therefore, proper to present the account prepared for a variety.

Shell ovate-lanceolate. Colour uniform pale buff. Whorls six, of which the upper two are smooth, rather elongate protoconch. Sculpture : the last whorl carries 13 spirals, a small one on the shoulder is followed by six median which are large and spaced, the rest diminish progressively towards the snout. The penultimate whorl has four prominent median, and one small subsutural keel. On the upper whorls are incipient radial ribs, and in the interstices of the cinguli of the lower whorls are fine radial striæ. Length, 8·5 ; breadth, 4mm.

Named in honour of Dr. A. L. Maclean, Medical Officer of the Expedition.

Four specimens taken, July 4th, 1912, from 25 fathoms, Commonwealth Bay, Adelie Land.

Prosipho spiralis *Thiele.*

Prosipho spiralis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 209, pl. xiii., fig. 2.

One specimen, December 22nd, 1913, from 350-400 fathoms, in Commonwealth Bay, Adelie Land.

Pareuthria innocens *Smith.*

Thesbia innocens Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 4, pl. i., figs. 1, 1B; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 6.

Pareuthria innocens Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 212, pl. xiii., fig. 23, pl. xvi., fig. 22; *Id.*, Smith, "Terra Nova" Exped., Zool., ii., Moll., 1915, p. 72.

Several specimens, September 4th, 1912, from 25 fathoms; five, December 14th, 1913, from 45-50 fathoms; and one, November 21st, 1913, from 55-60 fathoms, in Commonwealth Bay, Adelie Land.

Probuccinum tenuistriatum *sp. nov.*

(Plate VIII., figs. 95, 96.)

Shell conical, thin, and semitransparent. Colour uniform isabelline, except the outer lip, which is white. Whorls five, the two first constituting a smooth dome-shaped protoconch. Epidermis thin, caducous, its fragments show fine radial laminæ. Sculpture: very fine and dense waved spiral hair lines, decussated at irregular intervals by corresponding growth lines and an occasional varix. Aperture oblique, anteriorly truncated, pyriform. Inner lip a thin smear of transparent callus. Outer lip thin, expanded and reflected posteriorly, supported by a distant and parallel varix. Canal wide, scarcely produced. Length, 16; breadth, 9mm.

This species is like, and possibly identical with, *Probuccinum tenerum*, as figured by Thiele (*op cit.*, pl. xiii., fig. 21), but differs in form and sculpture from *Neobuccinum tenerum*, as originally figured by Smith.

A single complete and fresh shell was taken, December 31st, 1913, from 157 fathoms, ooze, in the D'Urville Sea, in South Lat. 66° 32′ and East Long. 141° 39′.

Probuccinum costatum *Thiele.*

Probuccinum costatum Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 211, pl. xiii., fig. 22.

One, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′; one, January 27th, 1914, from 120 fathoms, rocky ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′; and one, January 31st, 1914, from 120 fathoms, near the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Neobuccinum eatoni *Smith.*

(Plate IX., fig. 97.)

Buccinopsis eatoni Smith, Ann. Mag. Nat. Hist. (4), xvi., 1875, p. 68.

Neobuccinum eatoni Smith, Phil. Trans. Roy. Soc., clxviii., 1879 (1877), p. 169, pl. ix., figs. 1, 1a ; *Id.*, Studer, Archiv. Naturg., xlv., 1879, p. 129 ; *Id.*, Watson, Chall. Rep. Zool., xv., 1886, p. 216 ; *Id.*, Smith, Coll. "Southern Cross," Moll., 1902, p. 202 ; *Id.*, Thiele, Deutsch. Tiefsee Exped., vii., 1903, p. 168, pl. ix., fig. 57 ; *Id.*, Lamy, 1st Expéd. Antarct. Franç., 1906, Moll., p. 2 ; *Id.*, Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 1 ; Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 139 ; *Id.*, Scotia Zool., v., 1907, p. 109 ; *Id.*, Wilton, Zool. Log. Scotia, 1908, p. 28, pl. xxiv., fig. 74 ; *Id.*, Lamy, Bull. Mus. Hist. Nat., xvi., 1910, p. 199 ; *Id.*, Lamy, 2nd Expéd. Antarct. Franç., 1911, Moll., p. 5 ; *Id.*, Lamy, Ann. Inst. Oceanograph., iii., fasc. 3, 1911, p. 41 ; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 6, pl. i., figs. 11,12 ; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 211 ; *Id.*, Smith, "Terra Nova" Exped., ii., 1915, Moll., p. 72 ; *Id.*, Lamy, Bull. Mus. Hist. Nat., xxi., 1915, p. 69.

Neobuccinum præclarum Strebel, Schwed. Südpol. Exped., vi., 1908, p. 31, pl. iii., fig. 38.

Originally discovered at Kerguelen, this whelk is rarely missing from any Antarctic station, and seems to be abundant over a wide range in space and depth. Whether alive or dead the shell is almost invariably eroded. Only one of the Mawson collection preserved the natural surface. This, a half-grown and empty shell, from 60 fathoms, off Drygalski Island, has a thin straw-coloured epidermis, produced in fine spiral lines, about 30 to a whorl, of delicate, short, erect bristles. Radially, fine wrinkles connect the spirals (pl. ix., fig. 97). These bristle rows of the epidermis appear to have a specific and even generic importance.

From off Graham Land, Dr. H. Strebel has figured and described *Neobuccinum præclarum*, distinguished by the spiral lines of the epidermis from the reputedly smooth *N. eatoni*. It is now suggested that, as *N. eatoni* when perfect also possesses these spirals, *N. præclarum* must lapse.

Dr. Boog Watson, comparing *Chlanidota* * with the prior *Neobuccinum*, remarks that "the epidermis is curiously caducous," and considers that the bristle rows of *Chlanidota* alone distinguish that from *Neobuccinum*. Since *Neobuccinum* actually possesses this feature, Watson's conclusion that *Chlanidota* should be suppressed gains confirmation.

Several egg capsules, like those I have figured in the Shackleton report, were dredged with *N. eatoni*, on October 4th, 1912, in 25 fathoms, Commonwealth Bay. A dead and broken shell from 300 fathoms, off the Mertz Glacier Tongue, Adelie Land, is 70mm. in length, and if complete, would have reached at least 80mm. Besides these, the

* *Chlanidota* von Martens, Sitz. Ges. Naturf. Berlin, 1878, p. 23. The citation in the Zool. Record, 1877, Moll , p. 31, appears to establish priority for *Neobuccinum*, ostensibly published in 1879.

species was dredged from 15 fathoms (sea temperature 33° F.; bottom, brown algæ and stones) to 60 fathoms, alive, in Commonwealth Bay; and off the Shackleton Ice-shelf, in 240 fathoms (one dead, January 28th, 1914); and in 358 fathoms (one alive, January 31st, 1914).

Trophon albolabratus *Smith.*

Trophon albolabratus Smith, Ann. Mag. Nat. Hist. (4), xvi., 1875, p. 68; *Id.*, Kobelt, Conch. Cab., iii. (2), 1878, p. 307; *Id.*, Smith, Phil. Trans. Roy. Soc., clxviii., 1879, p. 170, pl. ix., fig. 2; *Id.*, Studer, Archiv. Naturgesch, xlv., 1879, p. 128; *Id.*, Sowerby, Thes. Conch., iv., 1880, p. 60, pl. ccccv., fig. 29; *Id.*, Watson, Chall. Rep. Zool., xv., 1886, p. 165; *Id.*, Melvill and Standen, Journ. of Conch., ix., 1898, p. 99; *Id.*, Martens, Deutsch. Tiefsee Exped., vii., 1903, p. 62; *Id.*, Strebel, Schwed. Südpol. Exped., vi., 1908, p. 42; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 248.

Trophon cinguliferus Martens and Pfeffer, Jahrb. Hamburg. Wiss. Anst., iii., 1886, p. 70, pl. i., fig. 2; *Id.*, Melvill and Standen, Trans. Roy. Soc. Edinb., xlvi., 1907, p. 136.

Ten specimens were gathered at the storm drift line at Wireless Cove, Macquarie Island, by Mr. H. Hamilton. Some brachipods were thrown up at the same time, and both probably had lived together in the kelp zone. All these storm-tossed shells were chipped, worn, and decapitated; they reach a length of 40mm. and a breadth of 22mm. Compared with *Trophon ambiguus* of New Zealand, it has rounder whorls, a lower spire, and a finer network of longitudinal and transverse threads, the latter predominating.

Trophon condensatus *sp. nov.*

(Plate IX., fig. 98.)

Shell small, ovate-lanceolate, rather solid, glossy, gradate. Colour white. Exclusive of a smooth, two whorled, elongate, turbinate protoconch; there are four whorls, horizontal above a rather sharp shoulder angle and perpendicular below it, excavate at the base. Sculpture: dense, narrow, forwardly directed, curved varices, set at the rate of 30 to a whorl, and continued vertically from the suture to the snout. Aperture pyriform, outer lip simple, inner lip excavate. Canal short, open, recurved. Breadth, 4·5; length, 10mm.

T. condensatus is nearest related to *Trophon minutus* Melvill and Standen,* a shallow water form from South Orkneys and South Georgia. But in the same number of whorls, that is, about three-quarters of the length of *T. condensatus*, and having a third fewer varices, is less closely ribbed.

Six specimens were taken, October 4th, 1912, in 25 fathoms, Commonwealth Bay, Adelie Land. (Narrative p. 200.)

* Melvill and Standen.—Trans. Roy. Soc. Edinb., xlvi., 1907, p. 137, fig. 7; *Id.*, xlviii., 1912, p. 354; *Id.*, Strebel, Schwed. Südpol. Exped., vi., 1909, p. 44, pl. iv., figs. 47A-B.

Trophon coulmanensis *Smith.*

(Plate IX., fig. 99.)

Trophon coulmanensis Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 3, pl. i., fig. 4; *Id.*, " Terra Nova " Exped., Zool., ii., 1915, Moll., p. 73, pl. i., fig. 14.

A single specimen taken alive shows the fronds curling in above the whorls more perfectly than the shell originally figured. This illustration was prepared before Mr. Smith's subsequent figure had reached me. It is 18mm. long, and occurred, December 28th, 1913, in 288 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Trophon longstaffi *Smith.*

Trophon longstaffi Smith, Nat. Antarct. Exped., ii., 1907, Moll., p. 3, pl. i., fig. 3; *Id.*, Hedley, Brit. Antarct. Exped., ii., 1911, p. 8, pl. i., fig. 14; *Id.*, Smith, " Terra Nova " Exped., Zool., ii., Moll., 1915, p. 73.

From Commonwealth Bay: one, September 3rd, 1912, 12 fathoms; two, September 3rd, 1912, 25 fathoms; two, December 14th, 1913, 45-50 fathoms; two, December 21st, 1913, from 55-60 fathoms; and one, December 22nd, 1913, from 350-400 fathoms. Two, December 28th, 1913, from 288 fathoms, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 52′ and East Long. 145° 30′.

Trophon shackletoni *Hedley.*

Trophon shackletoni Hedley, Brit. Antarct. Exped., ii., 1911, Moll., p. 7, pl. i., fig. 13; *Id.*, Smith, " Terra Nova " Exped., Zool., ii., 1915, Moll., p. 73.

A specimen from off Drygalski Island might, if not broken, have attained a length of over 60mm. In general appearance it corresponds to those from McMurdos Sound but has fewer and wider spaced varices, and the spiral sculpture is more pronounced, being furrows rather than scratches.

A fragment, December 21st, 1913, from 55-60 fathoms, Commonwealth Bay; and two, January 21st, 1914, from 60 fathoms, off Drygalski Island, in South Lat. 65° 42′ and East Long. 92° 10′.

Kerguelenia redimiculum *Reeve.*

Siphonaria redimiculum Reeve, Conch. Icon., ix., 1856, pl. v., fig. 24; *Id.*, Smith, Phil. Trans. Roy. Soc., clxviii., 1879, p. 182; *Id.*, Martens, Deutsch. Tiefsee Exped., vii., 1903, p. 72.

Kerguelenia redimiculum Mabille and Rochebrune, Miss. Scient. Cap Horn, Moll., 1889, p. 28.

Mr. H. Hamilton collected 18 specimens on " rocks in littoral zone " at Macquarie Island, of a form thus determined, which is, however, smoother than Reeve's figure,

and has the apex within the margin. For a species from the subantarctic islands of New Zealand, Mr. T. Iredale has proposed the name *Kerguelenia innominata.** I have not the means to institute a comparison between that and the Macquarie Island shell. Specimens of *Kerguelenia* brought from Macquarie Island by Mr. A. Hamilton in 1894, differ from the present series by being larger, with the apex further inwards from the margin, more radially furrowed, and of a paler colour. Perhaps they represent *K. lateralis* Gould.

Phrixgnathus hamiltoni *Suter.*

Laoma campbellica Hamilton, Trans. N.Z. Inst., xxvii., (1894) 1895, p. 577 (misidentification).

Laoma hamiltoni Suter, Proc. Malac. Soc., ii., 1896, p. 37, pl. iv., fig. 22-24 ; *Id.*, Suter, Man. N.Z. Moll., 1913, p. 753, pl. x., fig. 11.

Though it is so minute this snail is important because it is the most southern of the world.

Mr. A. Hamilton, the discoverer of this small species, found it to be plentiful in decaying vegetation at Lusitania Bay. His son, Mr. H. Hamilton, found 30 specimens, December 15th, 1911, on stems of the " Maori Cabbage," † near Charlotte Cove, and in August, 1912, he collected 17 specimens in rock crevices, under tussocks, and in *Stilbocarpa polaris*, at Garden Bay, north-east end of Macquarie Island.

Agriolimax agrestis *Linne.*

Agriolimax agrestis Taylor, Monog. Brit. Land and f. w. Mollusca, 1903, p. 104.

This small European slug has been introduced, occurring about the roots of *Stilbocarpa polaris* and under wood and stones, near the huts at Lusitania Bay, Macquarie Island.

Turbonilla lamyi *sp. nov.*

(Plate IX., fig. 100.)

Shell small, rather solid, subcylindrical. Colour buff. Remaining whorls six, rather flattened medially and constricted at the suture. Base rounded, unsculptured. On the last whorl there are 17 strong, perpendicular ribs, ceasing abruptly at the periphery and failing to undulate the suture. These are parted by deeply excavate intercostal spaces of the same breadth. There is no spiral sculpture. Aperture rhomboidal, columella perpendicular, thickened, with a slight median twist. Length 3·6 ; breadth, 1·1mm.

* Iredale.—Trans. N. Zeal. Inst., xlvii., 1915, p. 478. † " Home of the Blizzard," ii., 1915, p. 181, 232.

This novelty is named in honour of Dr. Edouard Lamy, of the Paris Museum, whose valuable contributions to Antarctic conchology are so frequently referred to in this report. It belongs to the subgenus *Chemnitzia*, as defined by Dall and Bartsch.* The species seems nearest to, and possibly identical with, *T. smithi* Strebel,† not Verrill, from Lemaire Straits. Judging from that figure, our shell, though of equal size, seems to have shorter whorls, and to be of more cylindrical habit. The species is represented by a single very worn and decapitated individual which Mr. H. Hamilton "found, January 2nd, 1913, in scrapings from rocks below low water, at Lusitania Bay, Macquarie Island."

Neactæonina fragilis *Thiele.*

Neactæonina fragilis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 219.

With doubt a single broken specimen 6·5mm. long is thus named. It came, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 52′ and East Long. 145° 30′.

Toledonia globosa *sp. nov.*

(Plate IX., fig. 101.)

Shell globose-ovate, thin. Colour white. Whorls four, rounded, subgradate above. Surface smooth and glossy, marked by faint growth lines. Aperture reniform, outer lip simple, thin, semicircular. Columella knee-shaped, projecting abruptly into the aperture, its margin reflected over a minute axial perforation. A thin callus on the inner lip extending from insertion to insertion. Length, 6; breadth, 4mm.

Six, December 28th, 1913, from 288 fathoms, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Toledonia major *Hedley.*

var. elata *var. nov.*

Odostomiopsis major Hedley, Brit. Antarct. Exped., ii., 1911, p. 6, pl. i., figs. 9, 10.

Toledonia major Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 218, pl. xiv., figs. 14, 15.

The present form is rather longer and narrower than the type from off Cape Royds, with a specimen of which I have compared it. This is the variety which has been figured by Thiele.

Twenty, October 4th, 1912, from 25 fathoms; one, December 14th, 1913, from 45-50 fathoms; and one, December 21st, 1913, from 55-60 fathoms, Commonwealth Bay. Four, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

* Dall and Bartsch.—Bull. 68, U.S. Nat. Mus., 1909, p. 33.

† Strebel.—Zool. Jahrb., xxii., 1905, p. 659, pl. xxiii., fig. 42; xxiv., 1907, p. 169.

Newnesia antarctica *Smith.*

Newnesia antarctica Smith, Coll. "Southern Cross," 1902, p. 208, pl. xxv., figs. 1-6; *Id.*, Eliot, Journ. of Conch., xi., 1906, pp. 312-5, fig. 6; *Id.*, Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 218.

With this should be compared Strebel's genus *Anderssonia*.

One, December 28th, 1913, from 230 fathoms, ooze, off the Mertz Glacier Tongue, Adelie Land, in South Lat. 65° 48′ and East Long. 137° 32′. Two with the animal complete, January 31st, 1914, from 110 fathoms, stony bottom, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

Clione antarctica *Smith.*

Clione antartica Smith, Coll. "Southern Cross," 1902, p. 210, pl. xxv., figs. 7, 8.

During calm weather in April Sir Douglas Mawson observes that pteropods were noticed swimming near the beach.*

Four specimens, September 14th, 1912, and October 7th, 1912, from Commonwealth Bay, are noted as being pink on the anterior half of the body and colourless posteriorly. Dr. A. L. MacLean obtained four more from the surface of the boat harbour in Commonwealth Bay in 1913.

This species has been omitted by Dr. Tesch from his monograph of the Pteropoda in "Das Tierriech."

Cliodita caduceus *Quoy and Gaim.*

Cliodita caduceus Quoy and Gaim, Ann. Sci. Nat. (I.), vi., 1825, p. 74, pl. ii., fig. 4; *Id.*, Voy. Uranie et Phys. Zool., 1825, p. 413, pl. lxvi., fig. 1.

Spongiobranchœa australis Orbigny, Voy. Amer. Merid., 1840, p. 131, pl. xix., figs. 1-7; *Id.*, Pelseneer, Chall. Rep. Zool., xix., 1887, p. 19, pl. i., figs. 6-7; *Id.*, Meisenheimer, Voy. Valdivia, ix., 1905, p. 47, pl. xvi., fig. 4; *Id.*, Tesch, Das Tierreich, Pteropoda, 1913, p. 110, fig. 80.

Mr. Hamilton gathered a score of specimens, averaging 20mm. in length, at the north end of Macquarie Island, stranded on the beach, April 17th, 1912, after a gale. These more resemble the figure of Meisenheimer than that of Pelseneer.

Dr. A. L. Maclean collected three small ones on the surface of Commonwealth Bay in 1913. Six more were netted by Hunter and Hamilton, January 14th, 1914, among the pack ice off Knox Land.

* Mawson.—"Home of the Blizzard," i., 1915, p. 132.

Doris antarctica *sp. nov.*

(Plate IX., fig. 102.)

Animal large, thick, oblong. Dorsal surface evenly and closely covered with fine grains among which larger grains are set at about 3mm. or 4mm. apart. Branchiæ 12, bipinnate, exsert in the preserved specimen. Rhinophores perfoliate, retractile in simple pockets about 20mm. apart. Length, as contracted, 100; breadth, 60; height, 50mm.

Jaw absent. Radula (text fig. 3) of 39 half rows; the laterals with simple, long, oblique, knife-like cusps which diminish medially till on the subrachidian there is a small and shortly reflected cusp.

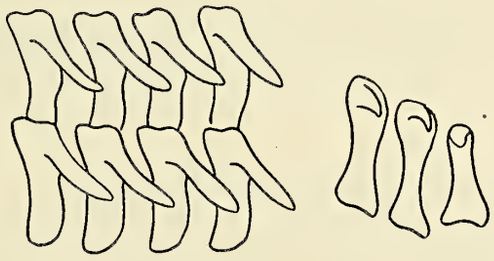

Fig. 3.

Two specimens from 350-400 fathoms, Commonwealth Bay.

The salient characters of this species are its large size and finely tuberculate dorsal surface. Sir C. Eliot remarks that Bergh's classification improperly extinguishes the Linnean *Doris*.* He therefore remodels *Doris* to include *Staurodoris* (= *Dorissensu stricto*), *Archidoris*, *Ctenodoris*, *Anisodoris*, and *Homoiodoris*. The present species is referable to the first section which already includes five Antarctic members.

Doris nivalis *Thiele.*

Archidoris tuberculata, var., Vayssiere, First Expéd. Antarct. Franç., 1906, Nudibranch., p. 4, pl. iii., figs. 39-41.

Archidoris nivalis Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 221.

The tubercles on the back are of equal size in the largest, as in the smallest specimen, so that the older are comparatively smoother in appearance.

From Commonwealth Bay—one, September 3rd, 1912, from 25 fathoms; and another, December 21st, 1913, from 55-60 fathoms. One, January 31st, 1914, from 110 fathoms, hard ground, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′; the latter is 65mm. long. One, January 27th, 1914, from 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 95° 17′; this has a length of 70mm.

* Eliot.—Brit. Nudibranch, Mollusca, 1910, p. 95; and Apstein-Sitz, Gesell. Naturf. Fr. Berlin, 1915, p. 121.

Bathydoris hodgsoni *Eliot.*

Bathydoris hodgsoni Eliot, Nat. Antarct. Exped., 1907, Nudibranch., p. 12, figs. E., G., 12-16; *Id.*, Evans, Trans. Roy. Soc. Edinb., l., 1914, p. 192.

One, January 27th, 1914, from 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′. Another, January 29th, 1914, from 325 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 6′ and East Long. 96° 13′.

Aegires albus *Thiele.*

Aegires albus Thiele, Deutsch. Südpol. Exped., xiii., 1912, p. 222, text fig. 7, pl. xix., fig. 4.

One specimen, 15mm. long, January 27th, 1914, from 120 fathoms, hard ground, in the Davis Sea, in South Lat. 66° 8′ and East Long. 94° 17′.

Tritoniella sinuata *Eliot.*

Tritoniella sinuata Eliot, Nat. Antarct. Exped., 1907, Nudibranch., p. 10, figs. C. 9-11.

From Commonwealth Bay—one, September 4th, 1912, from 25 fathoms; and another, December 22nd, 1913, from 350-400 fathoms.

Notæolidia depressa *Eliot.*

Notæolidia depressa Eliot, Nat. Antarct. Exped., 1907, Nudibranch., p. 20, figs. H., I., 22-24.

One, September 4th, 1912, from 25 fathoms, in Commonwealth Bay. One, December 28th, 1913, from 288 fathoms, ooze, off the Mertz Glacier, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′. One, January 31st, 1914, from 110 fathoms, hard ground, off the Shackleton Ice-shelf, in South Lat. 64° 32′ and East Long. 97° 20′.

GASTEROPOD EGGS.

(Plate IX., fig. 103.)

What appears to be the ova of some gasteropod is a ribbon wound by its edge about a stalk of Alcyonarian fibre. There are about eight whorls about 1mm. thick, each coil about 12mm. in diameter. The flat side is plicate, radially from the axis, by bundles of ova.

This was dredged, December 28th, 1913, in 288 fathoms, ooze, off the Mertz Glacier, Adelie Land, in South Lat. 66° 55′ and East Long. 145° 21′.

Class SCAPHOPODA.

Dentalium majorinum *Mabille and de Rochefort.*

(Plate IX., figs. 104, 105.)

Dentalium majorinum Mabille and de Rochefort, Miss. Scient. Cap Horn, vi., Moll., 1889, p. 100, pl. iv., fig. 10 ; *Id.*, Pilsbry and Sharp, Man. Conch., xvii., 1898, p. 27, pl. xii., figs. 98, 99 ; *Id.*, Plate, Deutsch. Südpol. Exped., x., 1908, p. 5 ; *Id.*, Smith, " Terra Nova " Exped., Zool., 1915, Moll., p. 74.

A *Dentalium* of frequent occurrence in the area examined is thus determined, and for more exactitude a figure is supplied of a specimen 36mm. long and 3·5mm. broad, from near the Shackleton Ice-shelf. Most are severely eroded ; on better preserved material from 15 to 24 ribs appear ; these increase by intercalation. An injured specimen is 47mm. long.

There were dredged, December 28th, 1913, nine from 288 fathoms, ooze, off the Mertz Glacier Tongue, in South Lat. 66° 55′ and East Long. 145° 30′. One, January 2nd, 1914, from 230 fathoms, ooze, off the coast of Wilkes Land, in South Lat. 65° 48′ and East Long. 137° 32′. One, January 28th, 1914, from 240 fathoms, ooze, off the Shackleton Ice-shelf, in South Lat. 65° 20′ and East Long. 95° 27′. In the same neighbourhood, two, January 29th, 1914, from 325 fathoms ; one January 31st, 1914, from 110 fathoms ; and four, January 31st, 1914, from 358 fathoms.

EXPLANATION OF PLATES.

Fig.

Plate I.

1, 2.—Interior and exterior of valve of *Pronucula mesembrina* Hedley. Type specimen.

3, 4.—Dorsal and lateral view of *Malletia sabrina* Hedley. Type specimen.

5, 6, 7.—Exterior, bare and dressed in epidermis, and hinge of *Philippiella bagei* Hedley. Type specimen.

8, 9, 10, 11.—Exterior, bare and dressed in epidermis, hinge and prodissoconch of *Philippiella hamiltoni* Hedley. Type specimen.

12, 13.—Exterior, draped in epidermis, and hinge of *Philippiella orbiculata* Hedley. Type specimen.

Plate II.

14, 15.—Broken valve of adult type of *Chlamys subantarctica* Hedley, and a young shell, 6mm. high, assigned to this species.

16.—Exterior of *Lima closei* Hedley. Type specimen.

17, 18, 19.—Exterior and hinges of *Gaimardia smithi* Suter.

20, 21, 22.—Exterior and hinges of *Gaimardia trapezina* Lamk., var. *coccinea* Hedley.

23, 24.—Exterior and hinge of *Kidderia macquariensis* Hedley. Type specimen.

25, 26, 27.—Exterior and hinges of *Kidderia pusilla* Gould.

Plate III.

28.—Exterior of *Pholadomya antarctica* Hedley. Type specimen.

29, 30.—Dorsal and lateral views of *Pholadomya mawsoni* Hedley. Type specimen.

31, 32.—Dorsal and lateral views of *Pholadomya adelaidis* Hedley. Type specimen.

33, 34.—Dorsal and lateral aspects of *Venericardia astartoides* von Martens.

35, 36, 37.—Anterior and lateral aspects and hinge of *Ptychocardia rudis* Hedley. Type specimen.

38, 39.—Exterior and hinge of *Pseudokellia stillwelli* Hedley. Type specimen.

Plate IV.

40, 41.—Exterior and hinge of *Rochefortia macquariensis* Hedley. Type specimen.

42, 43, 44.—Exterior and hinge of *Lasœa consanguinea* Smith.

45, 46.—Hinge of *Lasœa australis* Lamarck, from Gerrigong, New South Wales, for comparison with *L. consanguinea*.

47, 48, 49, 50.—Dorsal, lateral, and interior aspects of type specimen of *Chione mawsoni* Hedley. Lateral aspect of radially striated variety.

51, 52, 53.—Exterior and hinges of *Saxicava antarctica* Philippi.

Plate V.

54, 55.—Dorsal and oral aspects of *Schismope subantarctica* Hedley. Type specimen.

56, 57.—Basal and peripheral aspects of *Margarella macquariensis* Hedley. Type specimen.

58.—*Submargarita smithiana* Hedley. Type specimen.

59.—*Minolia thielei* Hedley. Type specimen.

60, 61.—Shell and animal (from alcoholic specimen) of *Photinula coruscans* Hedley. Type specimen.

Fig.

PLATE VI.

62, 63.—Apical and lateral aspects of *Radiacmea macquariensis* Hedley. Type specimen.
64.—*Lepeta depressa* Hedley. Type specimen.
65, 66, 67, 68.—*Nacella delesserti* Phillipi. Adult from above and from the side ; young specimen 12mm. long, from above, and animal from alcoholic specimen.
69.—Animal of *Cellana variegata* Blainville, from Middle Harbour, Sydney, drawn from life for comparison with *Nacella*, showing cervical gap in branchial ruff and absence of pedal flounce.
70.—*Brookula* sp.
71, 72.—Young and adult of *Lævilitorina antarctica* Smith var.
73.—*Lævilitorina hamiltoni* Smith.

PLATE VII.

74.—*Eatoniopsis ainsworthi* Hedley. Type specimen.
75.—*Tatea melvilli* Hedley. Type specimen.
76.—*Subonoba bickertoni* Hedley. Type specimen.
77.—*Subonoba wilkesiana* Hedley. Type specimen.
78.—*Eumeta strebeli* Thiele.
79.—*Melanella laseroni* Hedley. Type specimen.
80.—*Stilifer polaris* Hedley. Type specimen.
81.—*Friginatica pisum* Hedley. Type specimen.
82.—*Lamellariopsis aurora* Hedley. Type specimen.
83.—*Marginella hyalina* Thiele.

PLATE VIII.

84.—*Oenopota davisi* Hedley. Type specimen.
85, 86, 87.—*Pontiothauma ergata* Hedley, imperfect upper portion of type, separate larger median whorl and detail sculpture of another specimen.
88, 89, 90.—*Fusitriton aurora* Hedley. Type specimen, complete shell, apex and operculum.
91.—*Prosipho aurora* Hedley. Type.
92.—*Prosipho hunteri* Hedley. Type.
93.—*Prosipho madigani* Hedley. Type.
94.—*Prosipho mundus* Smith, var. *macleani* Hedley.
95, 96.—*Probuccinum tenuistriatum* Hedley. Type specimen, from the front and side.

PLATE IX.

97.—Sculpture of *Neobuccinum eatoni* Smith.
98.—*Trophon condensatus* Hedley. Type specimen.
99.—*Trophon coulmanensis* Smith, to show development of fronds.
100.—*Turbonilla lamyi* Hedley, from imperfect type specimen.
101.—*Toledonia globosa* Hedley. Type.
102.—*Doris antarctica* Hedley. Type.
103.—Ova of large unknown Gasteropod.
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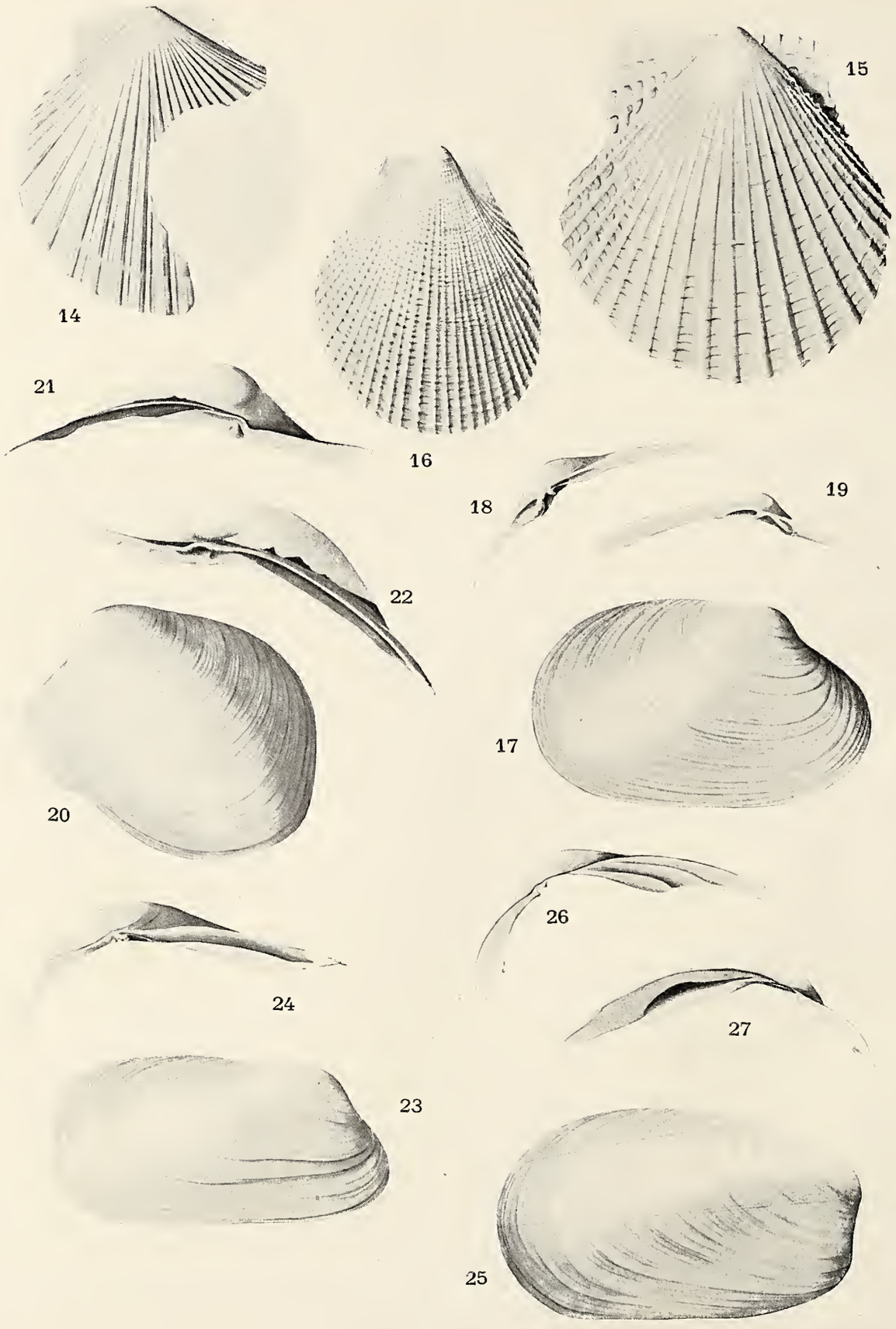

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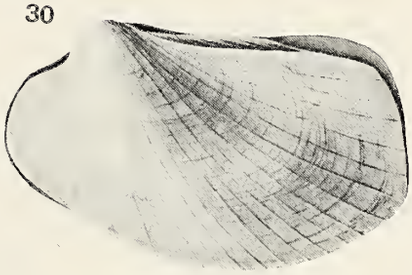

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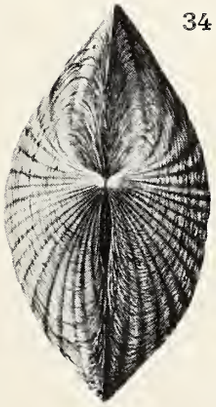

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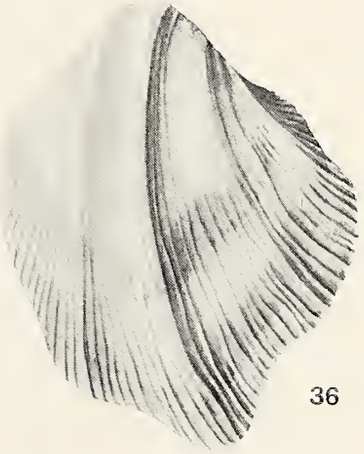

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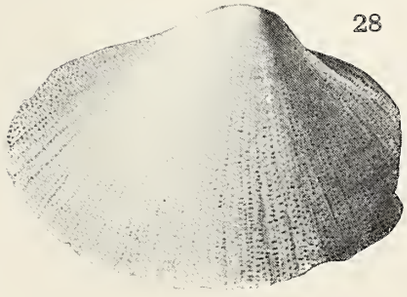

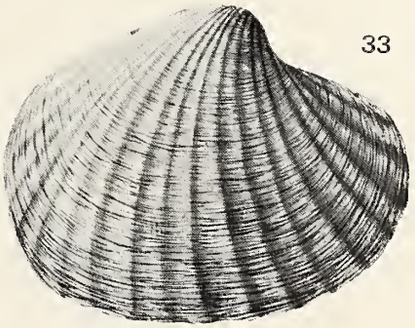

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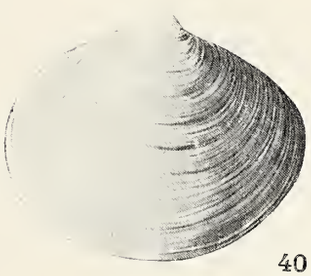

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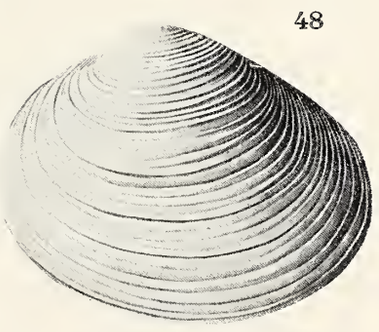

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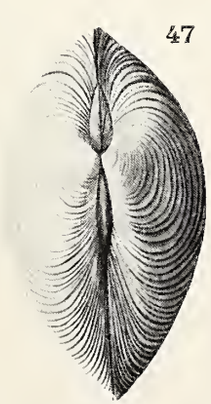

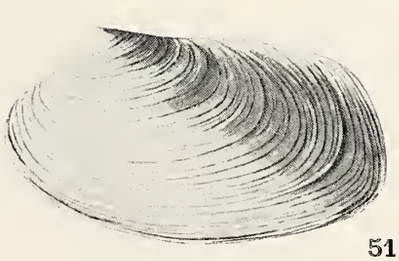

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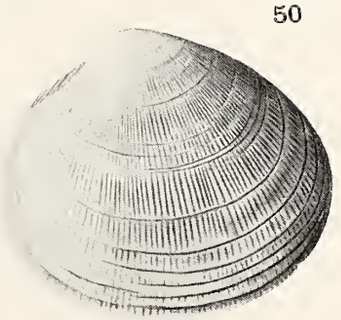

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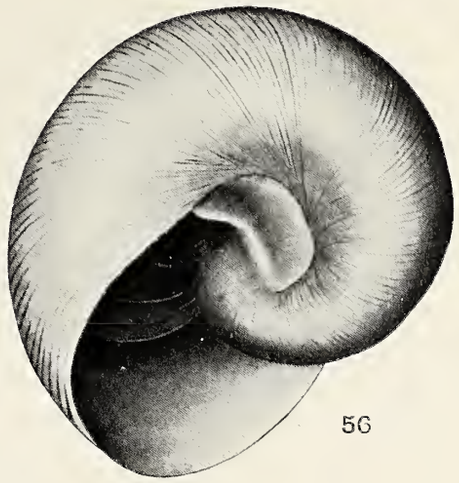

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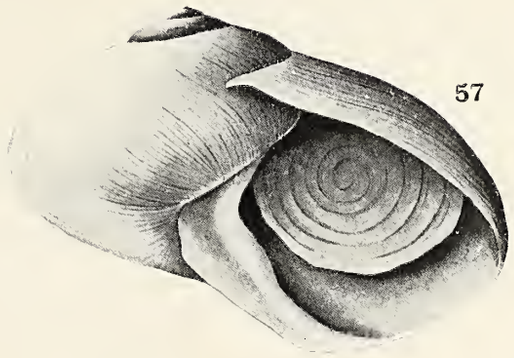

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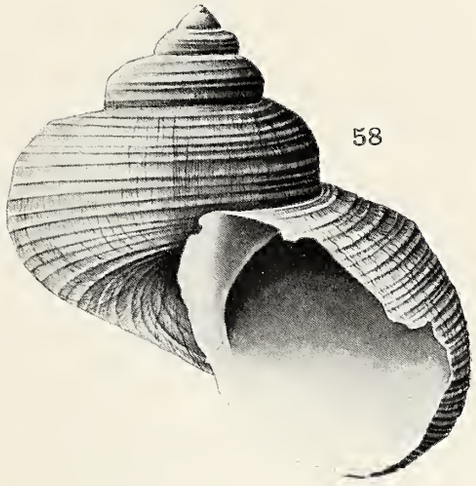

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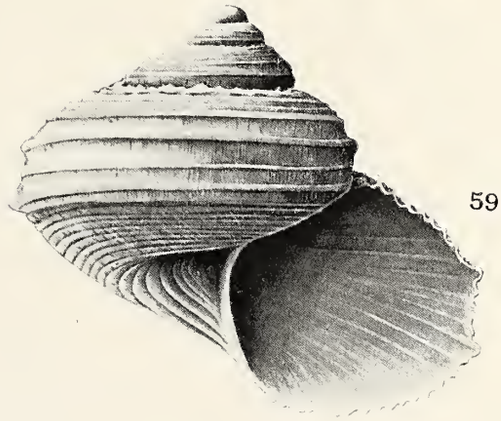

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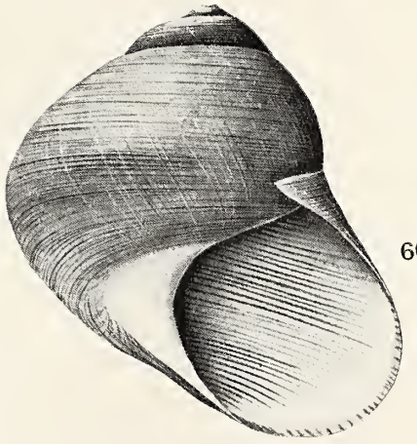

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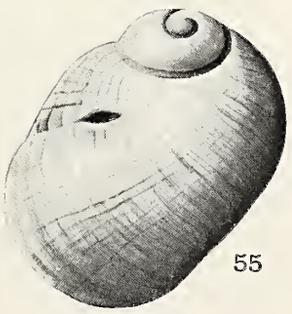

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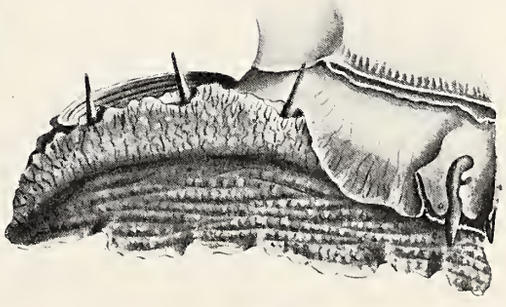

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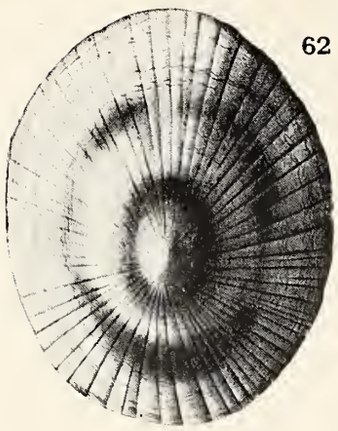
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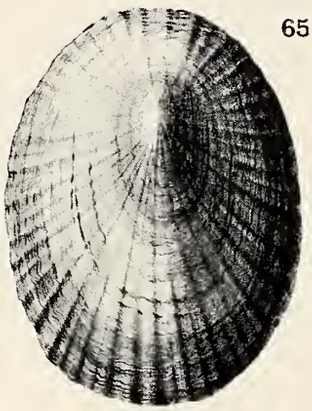
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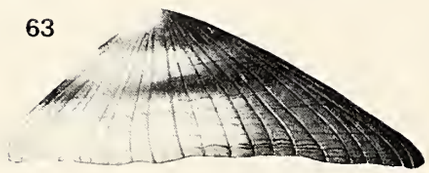
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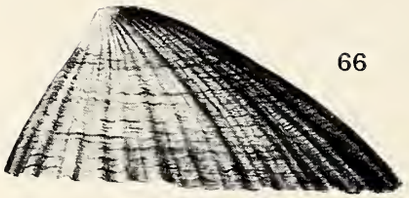
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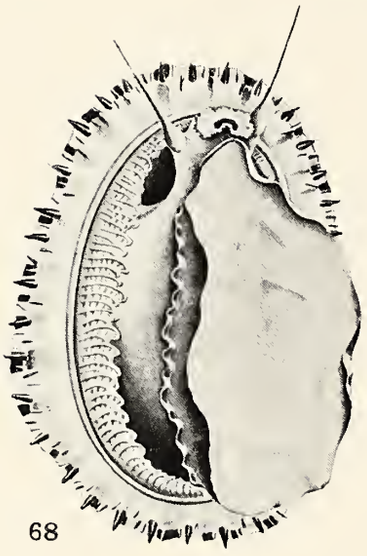
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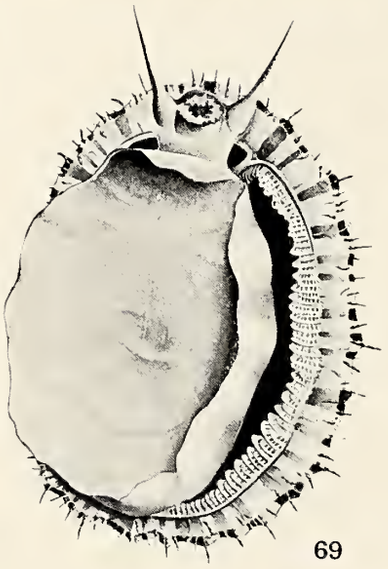
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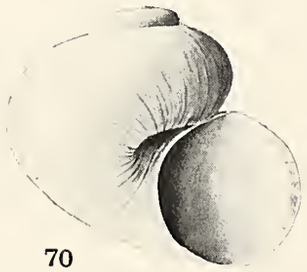
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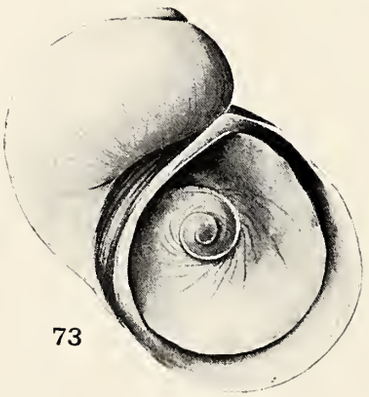
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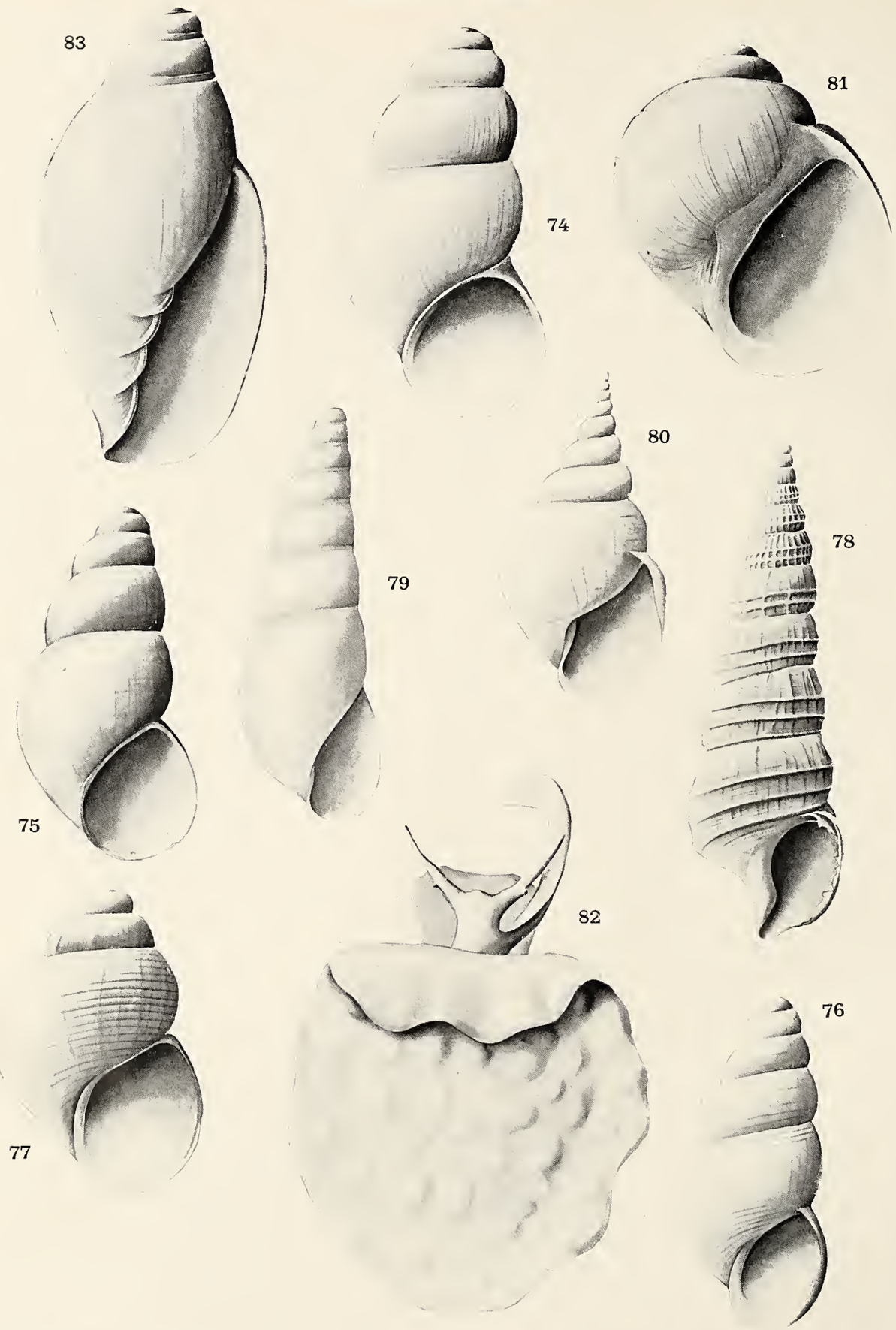

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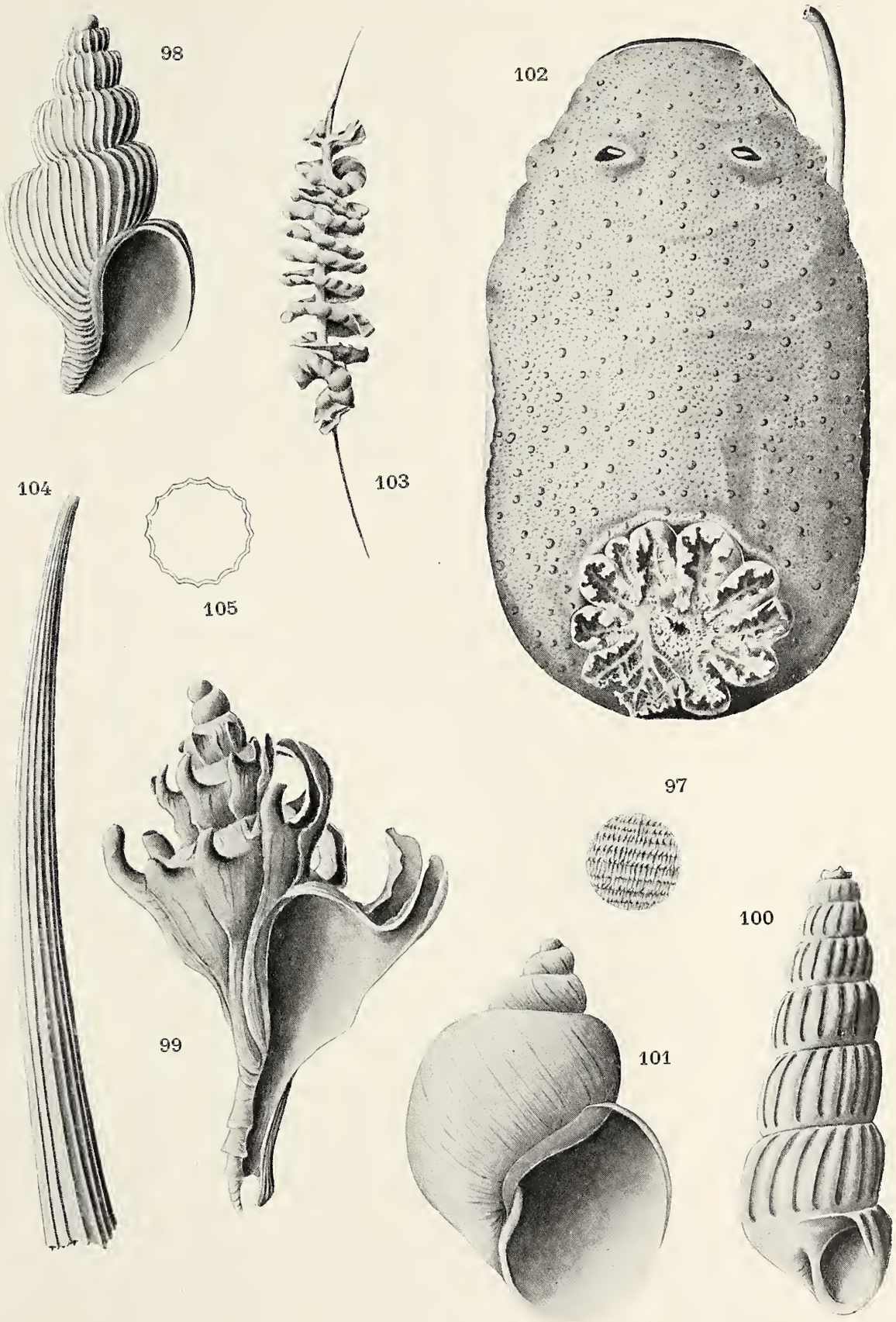

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